DCR-PC103E/PC104E/ PC105/PC105E

RMT-830/RMT-831

SERVICE MANUAL

Ver 1.0 2003. 04

Revision History

Photo : DCR-PC103E

US Model
Canadian Model
Korea Model
DCR-PC105
AEP Model
UK Model
East European Model
DCR-PC103E/PC105E
E Model
Hong Kong Model
DCR-PC104E/PC105/PC105E
Chinese Model
DCR-PC104E/PC105E
Australian Model
DCR-PC105E
Tourist Model
DCR-PC105/PC105E

Z MECHANISM

Link

SPECIFICATIONS	BLOCK DIAGRAMS	PRINTED WIRING BOARDS
SERVICE NOTE	FRAME SCHEMATIC DIAGRAMS	REPAIR PARTS LIST
DISASSEMBLY	SCHEMATIC DIAGRAMS	

• Reference No. search on printed wiring boards is available.

On the VC-319 board

This service manual provides the information that is premised the circuit board replacement service and not intended repair inside the VC-319 board.

Therefore, schematic diagram, printed wiring board, waveforms, mounted parts location and electrical parts list of the VC-319 board are not shown.

The following pages are not shown.

Schematic diagram ..... Pages 4-25 to 4-60
Printed wiring board ..... Pages 4-77 to 4-80
Waveforms ..... Pages 4-85 to 4-86
Mounted parts location ..... Page 4-89 to 4-90
Electrical parts list ..... Pages 5-15 to 5-23

Mini DV Digital Video Cassette **DIGITAL VIDEO CAMERA RECORDER**

SONY®

COVER

Self Diagnosis Supported model | Digital Handycam | InfoLITHIUM M SERIES | Cassette Memory | MEMORY STICK

SPECIFICATIONS

Video camera recorder

System

Video recording system
2 rotary heads
Helical scanning system
Mini DV Format (SD Specification of Consumer-Use Digital VCR)
Audio recording system
Rotary heads, PCM system
Quantization: 12 bits (Fs 32 kHz, stereo 1, stereo 2), 16 bits (Fs 48 kHz, stereo)
Video signal
NTSC colour, EIA standards (DCR-PC105 only)
PAL colour, CCIR standards (DCR-PC103E / PC104E / PC105E only)
Usable cassette
Mini DV cassette with the Mini DV mark printed
Tape speed
SP: Approx. 18.81 mm / s
LP: Approx. 12.56 mm / s
Recording/playback time (using cassette DVM60)
SP: 1 hour
LP: 1.5 hours
Fastforward/rewind time (using cassette DVM60)
Approx. 2 min. and 40 seconds
Viewfinder
Electric viewfinder (Colour)
Image device
3.8 mm (1 / 4.7 type)
CCD (Charge Coupled Device)
Gross: Approx. 1 070 000 pixels
Effective (still) (DCR-PC105 / PC105E only): Approx. 1 000 000 pixels
Effective (moving): Approx. 690 000 pixels
Lens
Carl Zeiss
Combined power zoom lens
Filter diameter: 30 mm (1 3 / 16 in.)
10× (Optical), 120× (Digital)
F = 1.8 – 2.0
Focal length
3.7 – 37 mm (5 / 32 – 1 1 / 2 in.)
When converted to a 35 mm still camera
In CAMERA mode:
50 – 500 mm (2 – 19 3 / 4 in.)
In MEMORY mode (DCR-PC105 / PC105E only):
42 – 420 mm (1 11 / 16 – 16 5 / 8 in.)
Colour temperature
Auto, HOLD, INDOOR (3 200 K), OUTDOOR (5 800 K)
Minimum illumination
7 lx (lux) (F 1.8)
0 lx (lux) (in the NightShot mode)*
* Objects unable to be seen due to the dark can be shot with infrared lighting.

Input/Output connectors

Audio/Video input (DCR-PC104E / PC105E only) **/output**
10-pin connector
Input / output auto switch (DCR-PC104E / PC105 / PC105E only)
Video signal: 1 Vp-p, 75 Ω, unbalanced
Luminance signal: 1 Vp-p, 75 Ω, unbalanced
Chrominance signal: , 0.286 Vp-p, 75 Ω (DCR-PC105 only)
0.3 Vp-p, 75 Ω (DCR-PC103E / PC104E / PC105E only)
unbalanced
Audio signal: 327 mV, (at output impedance more than 47 kΩ)
Input impedance with more than 47 kΩ (DCR-PC104E / PC105 / PC105E only)
Output impedance with less than 2.2 kΩ
DV input (DCR-PC104E / PC105E only)**/output**
4-pin connector
DV jack (DCR-PC105 only)
4-pin connector
Headphone jack
Stereo minijack (ø 3.5 mm)
LANC jack
Stereo mini-minijack (ø 2.5 mm)
USB jack
mini-B
MIC jack
Minijack, 0.388 mV low impedance with 2.5 to 3.0 V DC, output impedance 6.8 kΩ (ø 3.5 mm)
Stereo type

LCD screen

Picture
6.2 cm (2.5 type)
Total dot number
211 200 (960 × 220)

General

Power requirements
7.2 V (battery pack)
8.4 V (AC Adaptor)
Average power consumption (when using the battery pack)
During camera recording using LCD
3.7 W (DCR-PC103E / PC104E / PC105E only)
3.8 W (DCR-PC105 only)
Viewfinder
3.1 W (DCR-PC103E / PC104E / PC105E only)
3.2 W (DCR-PC105 only)
Operating temperature
0°C to 40°C (32°F to 104°F)
Storage temperature
–20°C to + 60°C
(–4°F to + 140°F)
Dimensions (approx.)
51 × 104 × 97 mm
(2 × 4 1 / 8 × 3 7 / 8 in.) (w / h / d)
Mass (approx.)
DCR-PC105 / PC105E:
460 g (1 lb)
DCR-PC103E / PC104E:
440 g (1 lb)
main unit only
DCR-PC105 / PC105E:
550 g (1 lb 4 oz)
DCR-PC103E / PC104E:
530 g (1 lb 3 oz)
including the rechargeable battery pack NP-FM30 (not for sale), cassette DVM60

Supplied accessories
See page 3.

AC Adaptor AC-L15A/L15B

Power requirements
100 – 240 V AC, 50 / 60 Hz
Current consumption
0.35 – 0.18 A
Power consumption
18 W
Output voltage
DC OUT: 8.4 V, 1.5 A
Operating temperature
0°C to 40°C (32°F to 104°F)
Storage temperature
–20°C to + 60°C
(–4°F to + 140°F)
Dimensions (approx.)
56 × 31 × 100 mm
(2 1 / 4 × 1 1 / 4 × 4 in.) (w / h / d)
excluding projecting parts
Mass (approx.)
190 g (6.7 oz)
excluding mains lead

Rechargeable battery pack NP-FM30

Maximum output voltage
DC 8.4 V
Output voltage
DC 7.2 V
Capacity
5.0 Wh (700 mAh)
Dimensions (approx.)
38.2 × 20.5 × 55.6 mm
(1 9 / 16 × 13 / 16 × 2 1 / 4 in.)
(w / h / d)
Mass (approx.)
65 g (2.3 oz)
Operating temperature
0°C to 40°C (32°F to 104°F)
Type
Lithium ion

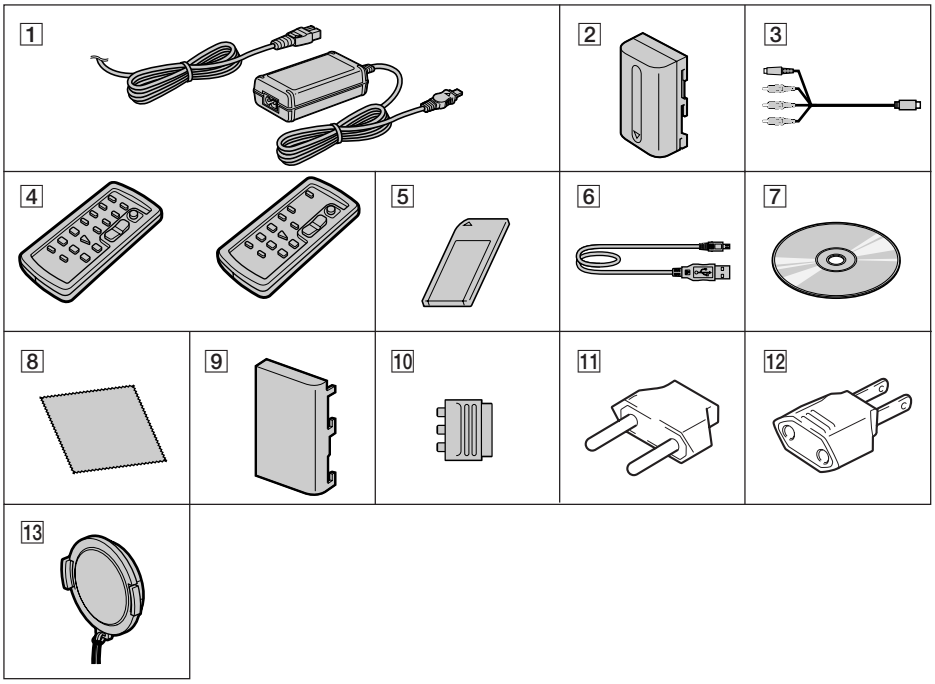
"Memory Stick" (DCR-PC105/PC105E only)

Memory
Flash memory
8MB: MSA-8A
Operating voltage
2.7 – 3.6 V
Power consumption
Approx. 45 mA during operation mode
Approx. 130 µA during tape recording standby
Dimensions (approx.)
50 × 2.8 × 21.5 mm
(2 × 1 / 8 × 7 / 8 in.) (w / h / d)
Mass (approx.)
4 g (0.14 oz)

Design and specifications are subject to change without notice.

• SUPPLIED ACCESSORIES

Make sure that the following accessories are supplied with your camcorder.



1 **AC-L15A/L15B AC Adaptor** (1), **Mains lead** (1)
2 **NP-FM30 rechargeable battery pack (BLUE)** (1)
3 **A/V connecting cable** (1) (AV multi)(1.5m)
4 **Wireless Remote Commander** (1)
(A button type lithium battery is built in.)
RMT-831: DCR-PC105 / PC105E
RMT-830: DCR-PC103E / PC104E
5 **"Memory Stick" (MSA-8A)** (1) (DCR-PC105 / PC105E only)
6 **USB cable** (1)
7 **CD-ROM (SPVD-010 USB Driver)** (1)
8 **Cleaning cloth** (1)
9 **Battery terminal cover** (1)
10 **21-pin adaptor** (1) (Models with CE mark printed on their bottom surfaces only)
(PC103E / PC105E: AEP, UK, EE only)
11 **2-pin Conversion adaptor** (1)
(PC105: JE / PC105E: JE only)
12 **2-pin Conversion adaptor** (1)
(PC104E: E, HK / PC105: E, HK / PC105E: E)
13 **Lens cap** (1)

Table for difference of functions

DCR-	PC103E	PC104E	PC105	PC105E	Remarks
Destination	AEP, UK, EE	E, HK, CH	US, CND, E, HK, JE, KR	AEP, UK, EE, E, HK, AUS, CH, JE	
Color system	PAL	PAL	NTSC	PAL	NTSC: X1501 is 66MHz. PAL: X1501 is 54MHz.
Remote commander	RMT-830	RMT-830	RMT-831	RMT-831	
VTR REC	×	○	○	○	
DV input	×	○	○	○	
MEMORY STICK (Digital still)	×	×	○	○	○ : With Memory stick connector
Flash	×	×	○	○	○ : With Flash unit (FL4400) With D001, S005 of PS4400 block With ST-084 board

- Abbreviation
  EE : East European model
  HK : Hong Kong model
  CH : Chinese model
  CND : Canadian model
  JE : Tourist model
  KR : Korea model
  AUS : Australian model

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK ⚠ OR DOTTED LINE WITH MARK ⚠ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

ATTENTION AU COMPOSANT AYANT RAPPORT À LA SÉCURITÉ!

LES COMPOSANTS IDENTIFÉS PAR UNE MARQUE ⚠ SUR LES DIAGRAMMES SCHÉMATIQUES ET LA LISTE DES PIÈCES SONT CRITIQUES POUR LA SÉCURITÉ DE FONCTIONNEMENT. NE REMPLACER CES COMPOSANTS QUE PAR DES PIÈSES SONY DONT LES NUMÉROS SONT DONNÉS DANS CE MANUEL OU DANS LES SUPPÉMENTS PUBLIÉS PAR SONY.

SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety checks before releasing the set to the customer.

1. Check the area of your repair for unsoldered or poorly-soldered connections. Check the entire board surface for solder splashes and bridges.
2. Check the interboard wiring to ensure that no wires are "pinched" or contact high-wattage resistors.
3. Look for unauthorized replacement parts, particularly transistors, that were installed during a previous repair. Point them out to the customer and recommend their replacement.
4. Look for parts which, through functioning, show obvious signs of deterioration. Point them out to the customer and recommend their replacement.
5. Check the B+ voltage to see it is at the values specified.
6. Flexible Circuit Board Repairing
   - Keep the temperature of the soldering iron around 270˚C during repairing.
   - Do not touch the soldering iron on the same conductor of the circuit board (within 3 times).
   - Be careful not to apply force on the conductor when soldering or unsoldering.

Unleaded solder

Boards requiring use of unleaded solder are printed with the lead-free mark (LF) indicating the solder contains no lead.
(Caution: Some printed circuit boards may not come printed with the lead free mark due to their particular size.)

: LEAD FREE MARK

Unleaded solder has the following characteristics.

- Unleaded solder melts at a temperature about 40°C higher than ordinary solder.
  Ordinary soldering irons can be used but the iron tip has to be applied to the solder joint for a slightly longer time.
  Soldering irons using a temperature regulator should be set to about 350°C.
  Caution: The printed pattern (copper foil) may peel away if the heated tip is applied for too long, so be careful!
- Strong viscosity
  Unleaded solder is more viscous (sticky, less prone to flow) than ordinary solder so use caution not to let solder bridges occur such as on IC pins, etc.
- Usable with ordinary solder
  It is best to use only unleaded solder but unleaded solder may also be added to ordinary solder.

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Printed wiring board of the VC-319 board are not shown.
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• FP-467/468/228 FLEXIBLE BOARD (MD BLOCK) ·····

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Waveforms of the VC-319 board are not shown.
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Parts list of the VC-319 board are not shown.
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COVER

SECTION 1
SERVICE NOTE

1-1. SERVICE NOTE

1. POWER SUPPLY DURING REPAIRS

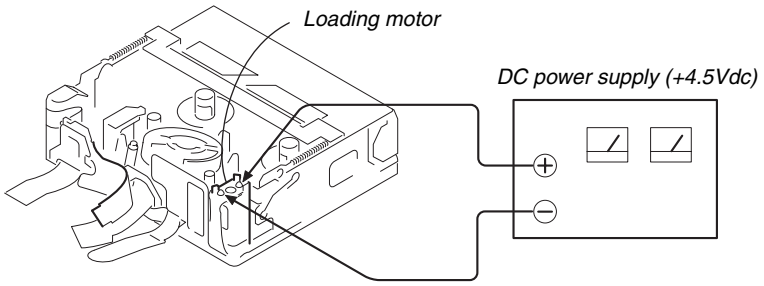
In this unit, about 10 seconds after power is supplied to the battery terminal using the regulated power supply (8.4V), the power is shut off so that the unit cannot operate.
This following two methods are available to prevent this. Take note of which to use during repairs.

Method 1.
Use the AC power adaptor (AC-L10, AC-VQ800 etc.).

Method 2.
Connect the servicing remote commander RM-95 (J-6082-053-B) to the LANC jack, and set the commander switch to the "ADJ" side.

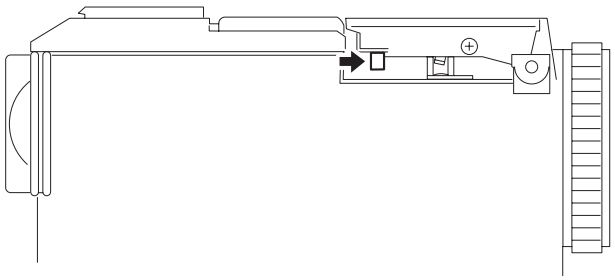
2. TO TAKE OUT A CASSETTE WHEN NOT EJECT (FORCE EJECT)

① Only for DCR-PC105/PC105E, open the flash.
② Only for DCR-PC105/PC105E, refer to "3. DISCHARGING OF THE FLASHLIGHT POWER SUPPLY CAPACITOR" to discharge the flash power supply capacitor.
③ Refer to 2-2., 2-3. and 2-4. to remove the cabinet (front) assembly, cabinet (G) assembly and cabinet (L).
④ Refer to 2-6. to remove the cabinet (R) section.
⑤ Refer to 2-13. and 2-14. to remove the cabinet (rear), control switch block (PS4400).
⑥ Refer to 2-15., 2-16. and 2-17. to remove the ST-084 board and LENS/EVF/ST section.
⑦ Refer to 2-28., 2-29. to remove the VC-319 board and mechanism deck (Z100).
⑧ Supply +4.5V from the DC power supply to the loading motor and unload with a pressing the cassette compartment.



3. HOW TO OPEN THE FLASH WHEN THE FLASH DOSEN'T OPEN (DCR-PC105/PC105E)

① Refer to 2-3. and 2-4. to remove cabinet (G) assembly and cabinet (L).
② Push the part pointed out with the arrow in the direction of the arrow.

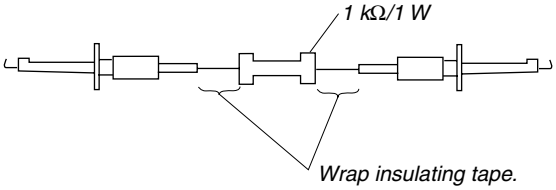


4. DISCHARGING OF THE FLASHLIGHT POWER SUPPLY CAPACITOR (DCR-PC105/PC105E)

The power supply capacitor (C6606) of the ST-084 board is charged up to the maximum 300V potential.
There is a danger of electric shock by this high voltage when the capacitor is handled by hand. The electric shock is caused by the charged voltage which is kept without discharging when the main power of the unit is simply turned off. Therefore, the remaining voltage must be discharged as described below.

4-1. PREPARING THE SHORT JIG

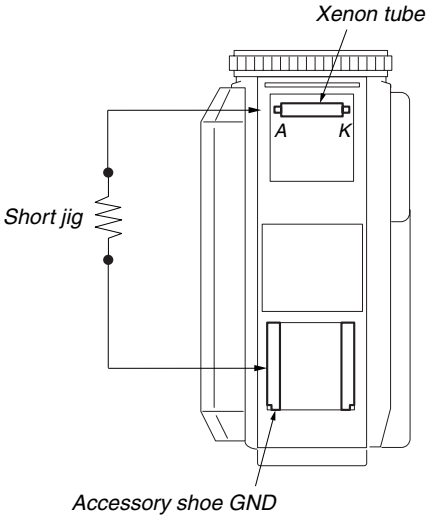
To preparing the short jig. a small clip is attached to each end of a resistor of 1kΩ/1W (1-215-869-119)
Wrap insulating tape fully around the reads of the resistor to prevent electric shock.



4-2. DISCHARGING THE CAPACITOR (DCR-PC105/PC105E)

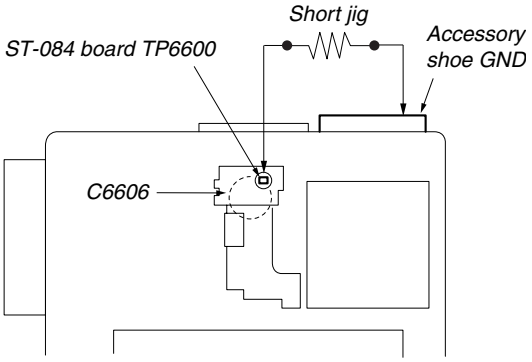
Discharging method (1):

① Open the flash.
② Remove the power supply (Battery or AC power adaptor).
③ Remove the ST cabinet (Upper).
④ Short-circuit between the Xenon tube anode and the GND (GND of the accessory shoe) with the short jig about 10 seconds.



Discharging method (2):

① Remove the power supply (Battery or AC power adaptor).
② Refer to 2-2. to remove the cabinet (front) section.
③ Refer to 2-6. to release the cassette cover lock and remove the cabinet (R) section.
④ Short-circuit between the TP6600 of the ST-084 board and the GND (GND of the accessory shoe) with the short jig about 10 seconds.



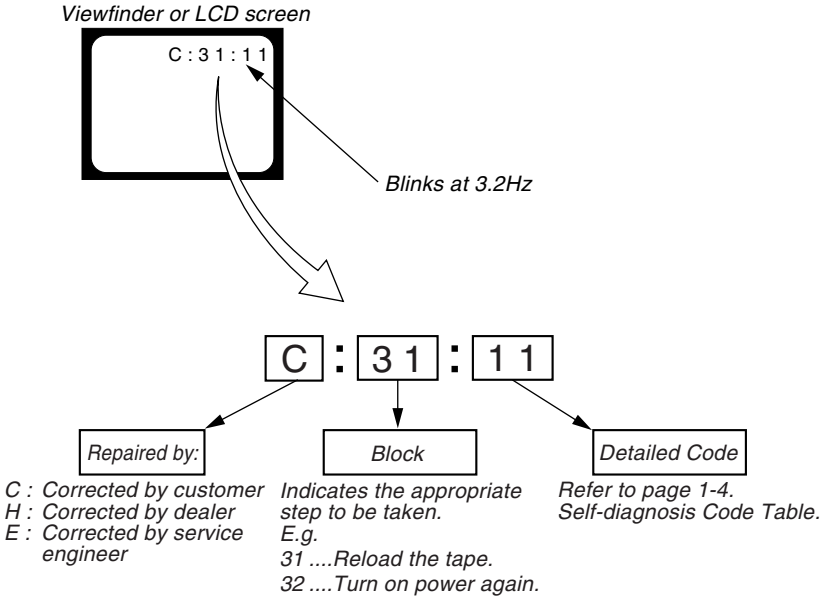
1-2. SELF-DIAGNOSIS FUNCTION

1. SELF-DIAGNOSIS FUNCTION

When problems occur while the unit is operating, the self-diagnosis function starts working, and displays on the viewfinder, or LCD screen what to do.
Details of the self-diagnosis functions are provided in the Instruction manual.

2. SELF-DIAGNOSIS DISPLAY

When problems occur while the unit is operating, the counter of the viewfinder or LCD screen consists of an alphabet and 4-digit number, which blinks at 3.2Hz. This 5-character display indicates the "repaired by:", "block" in which the problem occurred, and "detailed code" of the problem.


Viewfinder or LCD screen
C : 3 1 : 1 1
Blinks at 3.2Hz
C : 3 1 : 1 1
Repaired by:
Block
Detailed Code
C : Corrected by customer
H : Corrected by dealer
E : Corrected by service engineer
Indicates the appropriate step to be taken.
E.g.
31 ....Reload the tape.
32 ....Turn on power again.
Refer to page 1-4.
Self-diagnosis Code Table.

Note: The "self-diagnosis display" data will be kept even if the lithium battery (BT6401 of LI-070 board) is removed.

3. SELF-DIAGNOSIS CODE TABLE

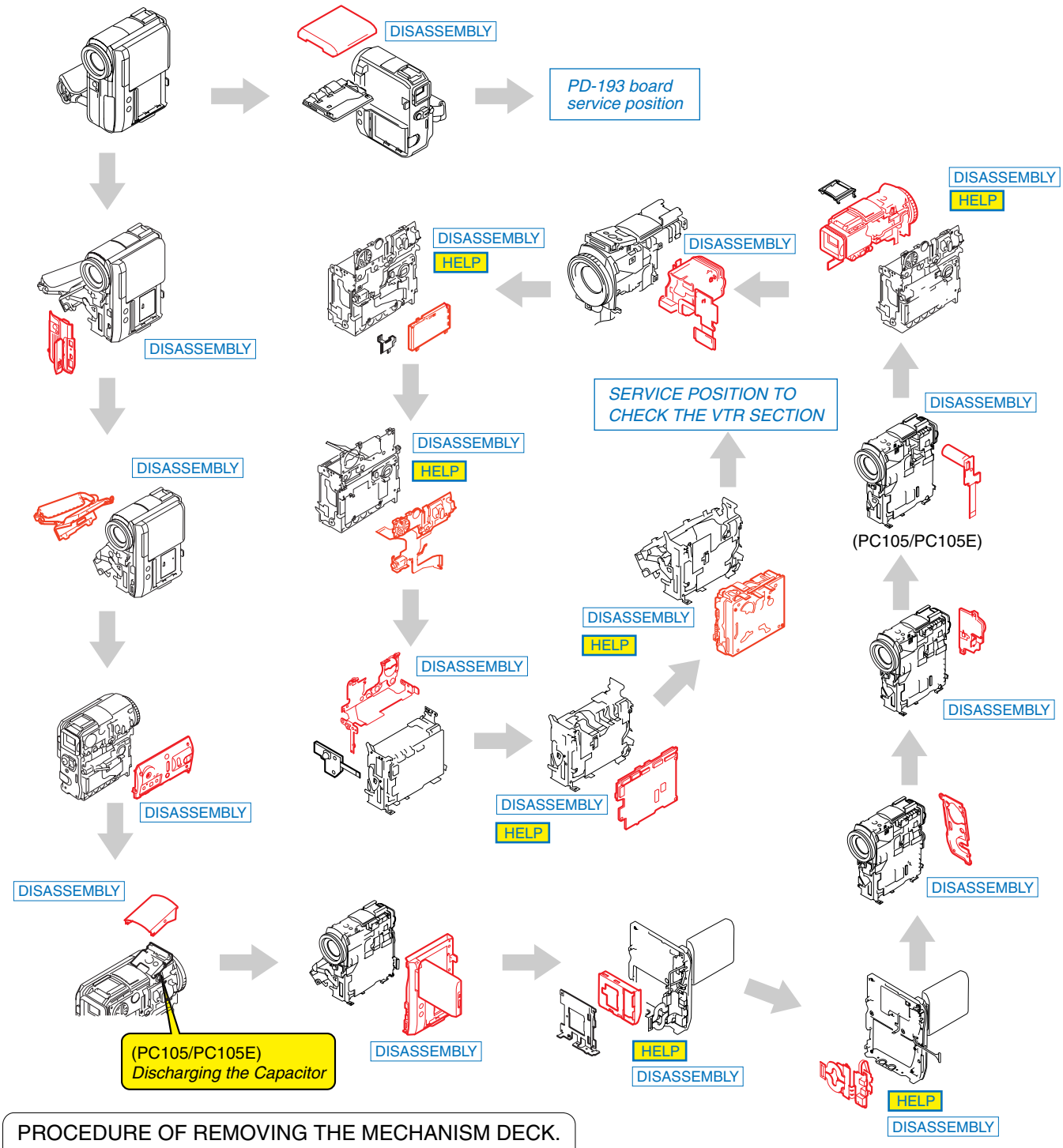
Self-diagnosis Code					Symptom/State	Correction
Repaired by:	Block Function		Detailed Code			
C	0	4	0	0	Non-standard battery is used.	Use the info LITHIUM battery.
C	2	1	0	0	Condensation.	Remove the cassette, and insert it again after one hour.
C	2	2	0	0	Video head is dirty.	Clean with the optional cleaning cassette.
C	3	1	1	0	LOAD direction. Loading does not complete within specified time	Load the tape again, and perform operations from the beginning.
C	3	1	1	1	UNLOAD direction. Loading does not complete within specified time	Load the tape again, and perform operations from the beginning.
C	3	1	2	0	T reel side tape slacking when unloading.	Load the tape again, and perform operations from the beginning.
C	3	1	2	1	Winding S reel fault when counting the rest of tape.	Load the tape again, and perform operations from the beginning.
C	3	1	2	2	T reel fault.	Load the tape again, and perform operations from the beginning.
C	3	1	2	3	S reel fault.	Load the tape again, and perform operations from the beginning.
C	3	1	2	4	T reel fault.	Load the tape again, and perform operations from the beginning.
C	3	1	3	0	FG fault when starting capstan.	Load the tape again, and perform operations from the beginning.
C	3	1	4	0	FG fault when starting drum.	Load the tape again, and perform operations from the beginning.
C	3	1	4	2	FG fault during normal drum operations.	Load the tape again, and perform operations from the beginning.
C	3	1	1	0	LOAD direction loading motor time-out.	Remove the battery or power cable, connect, and perform operations from the beginning.
C	3	1	1	1	UNLOAD direction loading motor time-out.	Remove the battery or power cable, connect, and perform operations from the beginning.
C	3	2	2	0	T reel side tape slacking when unloading.	Remove the battery or power cable, connect, and perform operations from the beginning.
C	3	2	2	1	Winding S reel fault when counting the rest of tape.	Remove the battery or power cable, connect, and perform operations from the beginning.
C	3	2	2	2	T reel fault.	Remove the battery or power cable, connect, and perform operations from the beginning.
C	3	2	2	3	S reel fault.	Remove the battery or power cable, connect, and perform operations from the beginning.
C	3	2	2	4	T reel fault.	Remove the battery or power cable, connect, and perform operations from the beginning.
C	3	2	3	0	FG fault when starting capstan.	Remove the battery or power cable, connect, and perform operations from the beginning.
C	3	2	4	0	FG fault when starting drum	Remove the battery or power cable, connect, and perform operations from the beginning.
C	3	2	4	2	FG fault during normal drum operations	Remove the battery or power cable, connect, and perform operations from the beginning.
E	6	1	0	0	Difficult to adjust focus (Cannot initialize focus.)	Inspect the lens block focus MR sensor (Pin ⑲, ⑳ of CN1013 of VC-319 board) when focusing is performed when the focus ring is operated in the focus manual mode, and the focus motor drive circuit (IC1301 of VC-313 board) when the focusing is not performed.
E	6	1	1	0	Zoom operations fault (Cannot initialize zoom lens.)	Inspect the lens block zoom MR sensor (Pin ⑧, ⑩ of CN1013 of VC-319 board) when zooming is performed when the zoom switch is operated and the zoom motor drive circuit (IC1301 of VC-319 board) when zooming is not performed.
E	6	2	0	0	Steadyshot function does not work well. (With pitch angular velocity sensor output stopped.)	Inspect pitch angular velocity sensor (SE5202 of CD-444 board) peripheral circuits.
E	6	2	0	1	Steadyshot function does not work well. (With yaw angular velocity sensor output stopped.)	Inspect yaw angular velocity sensor (SE5201 of CD-444 board) peripheral circuits.
E	9	1	0	1	Abnormality when the power supply capacitor of the flash unit is being charged.	Checking or replacement of the flash unit.

COVER

SECTION 2
DISASSEMBLY

HELP

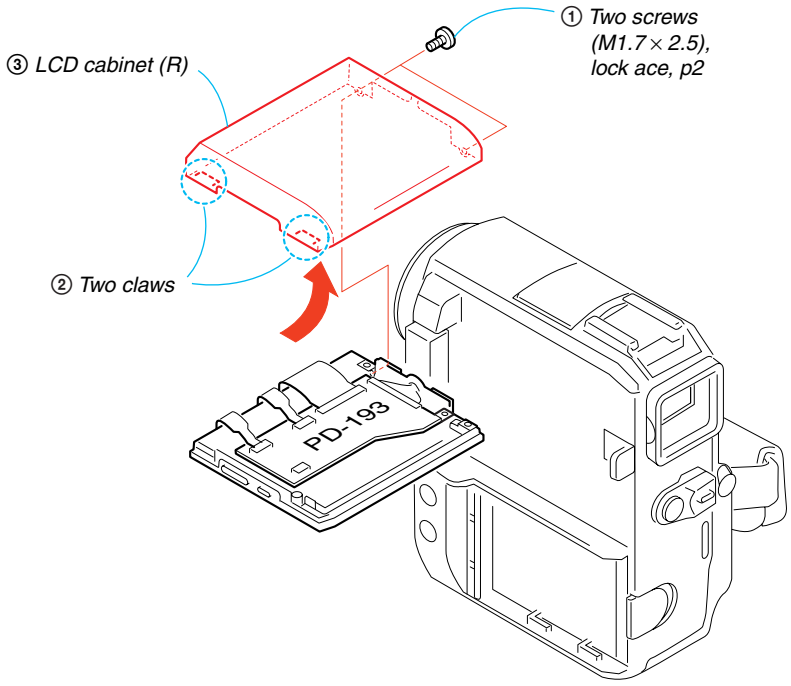
The following flow chart shows the disassembly procedure.



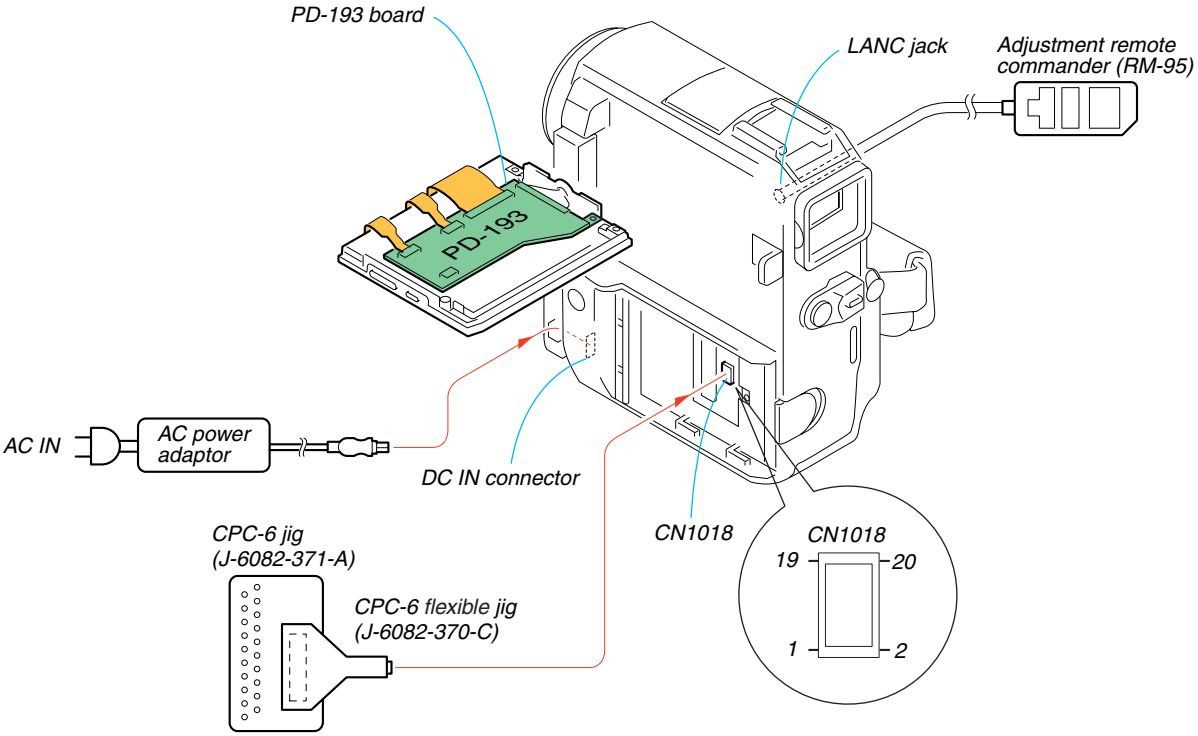
PROCEDURE OF REMOVING THE MECHANISM DECK. (VTR CHECK SERVICE POSITION)

① 2-2. CABINET (FRONT) ASSEMBLY ..... (page 2-3)
② 2-3. CABINET (G) ASSEMBLY..... (page 2-3)
③ 2-4. CABINET (L)..... (page 2-4)
④ 2-5. ST CABINET (UPPER) ASSEMBLY..... (page 2-4)
⑤ 2-6. CABINET (R) SECTION..... (page 2-5)
⑥ 2-7. BATTERY HOLDER..... (page 2-6)
⑦ 2-8. BJ-004 BOARD..... (page 2-7)
⑧ 2-13. CABINET (REAR)..... (page 2-11)
⑨ 2-14. CONTROL SWITCH BLOCK (PS4400)..... (page 2-12)
⑩ 2-15. ST-084 BOARD (PC105/PC105E)..... (page 2-12)
⑪ 2-16. LENS/EVF/ST SECTION-1..... (page 2-13)
⑫ 2-17. LENS/EVF/ST SECTION-2..... (page 2-13)
⑬ 2-18. EVF SECTION..... (page 2-14)
⑭ 2-25. HR RETAINER ASSEMBLY, MEMORY STICK CONNECTOR (PC105/PC105E)..... (page 2-20)
⑮ 2-26. CONTROL SWITCH BLOCK (FK4400)..... (page 2-21)
⑯ 2-27. NS-018 BOARD, FK FRAME ASSEMBLY..... (page 2-22)
⑰ 2-28. VC-319 BOARD..... (page 2-22)
⑱ 2-29. MECHANISM DECK (Z100)..... (page 2-23)
⑲ SERVICE POSITION TO CHECK THE VTR SECTION..... (page 2-24)

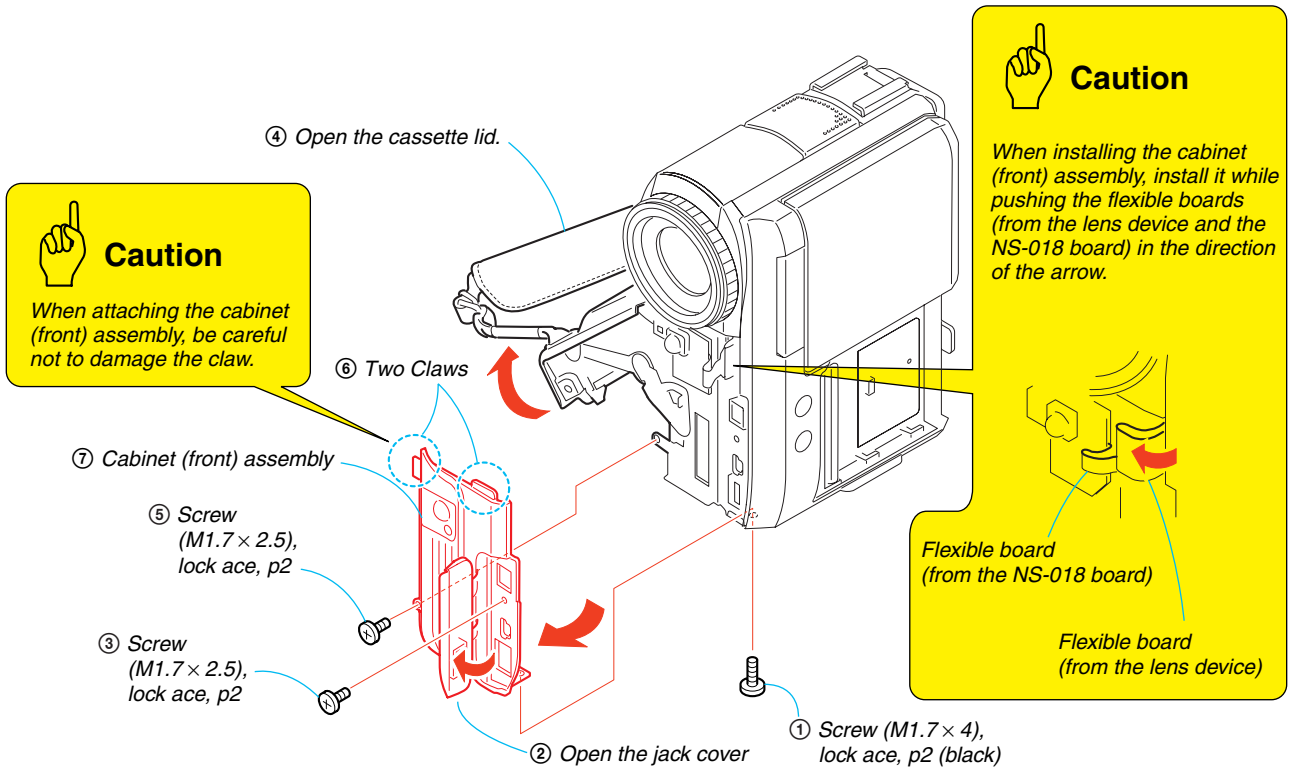
2-1. LCD CABINET (R)



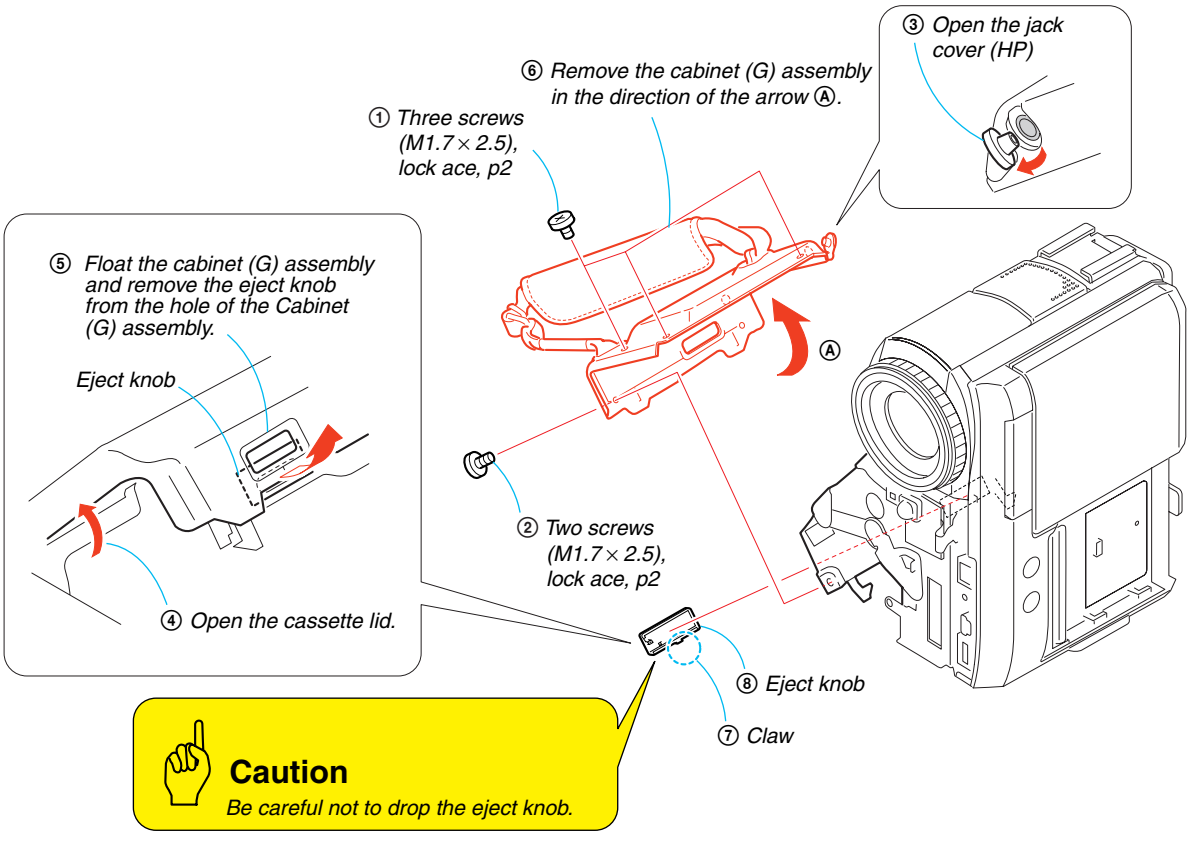
[PD-193 BOARD SERVICE POSITION]



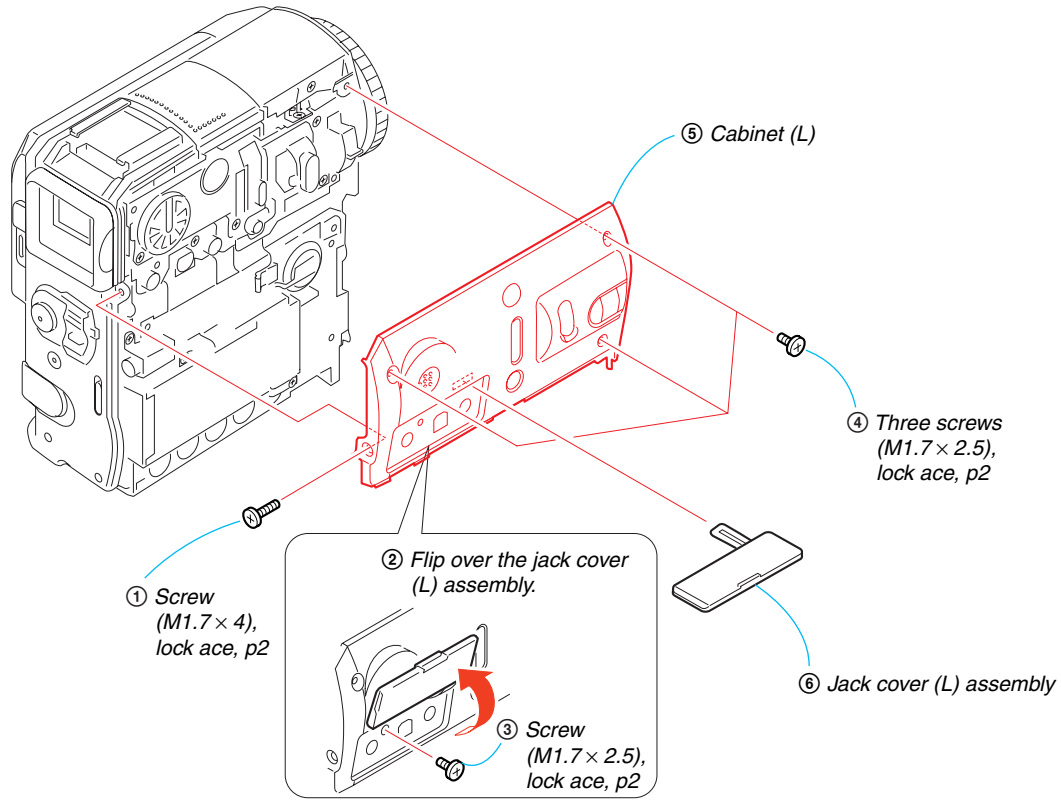
2-2. CABINET (FRONT) ASSEMBLY


④ Open the cassette lid.
Caution
When attaching the cabinet (front) assembly, be careful not to damage the claw.
⑥ Two Claws
⑦ Cabinet (front) assembly
⑤ Screw (M1.7 × 2.5), lock ace, p2
③ Screw (M1.7 × 2.5), lock ace, p2
② Open the jack cover
① Screw (M1.7 × 4), lock ace, p2 (black)
Caution
When installing the cabinet (front) assembly, install it while pushing the flexible boards (from the lens device and the NS-018 board) in the direction of the arrow.
Flexible board (from the NS-018 board)
Flexible board (from the lens device)

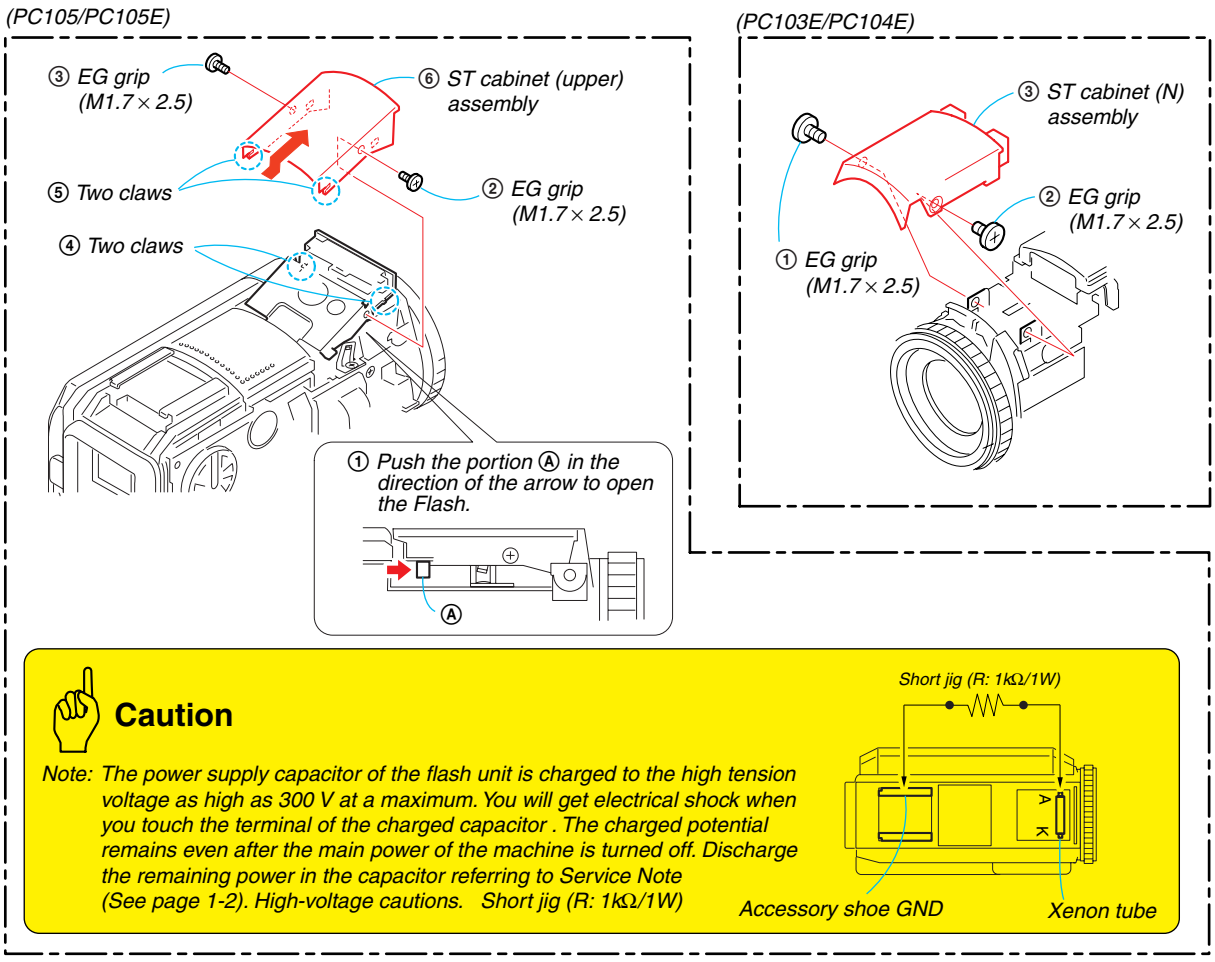
2-3. CABINET (G) ASSEMBLY


③ Open the jack cover (HP)
⑥ Remove the cabinet (G) assembly in the direction of the arrow Ⓐ.
① Three screws (M1.7 × 2.5), lock ace, p2
⑤ Float the cabinet (G) assembly and remove the eject knob from the hole of the Cabinet (G) assembly.
Eject knob
④ Open the cassette lid.
Ⓐ
② Two screws (M1.7 × 2.5), lock ace, p2
⑧ Eject knob
⑦ Claw
Caution
Be careful not to drop the eject knob.

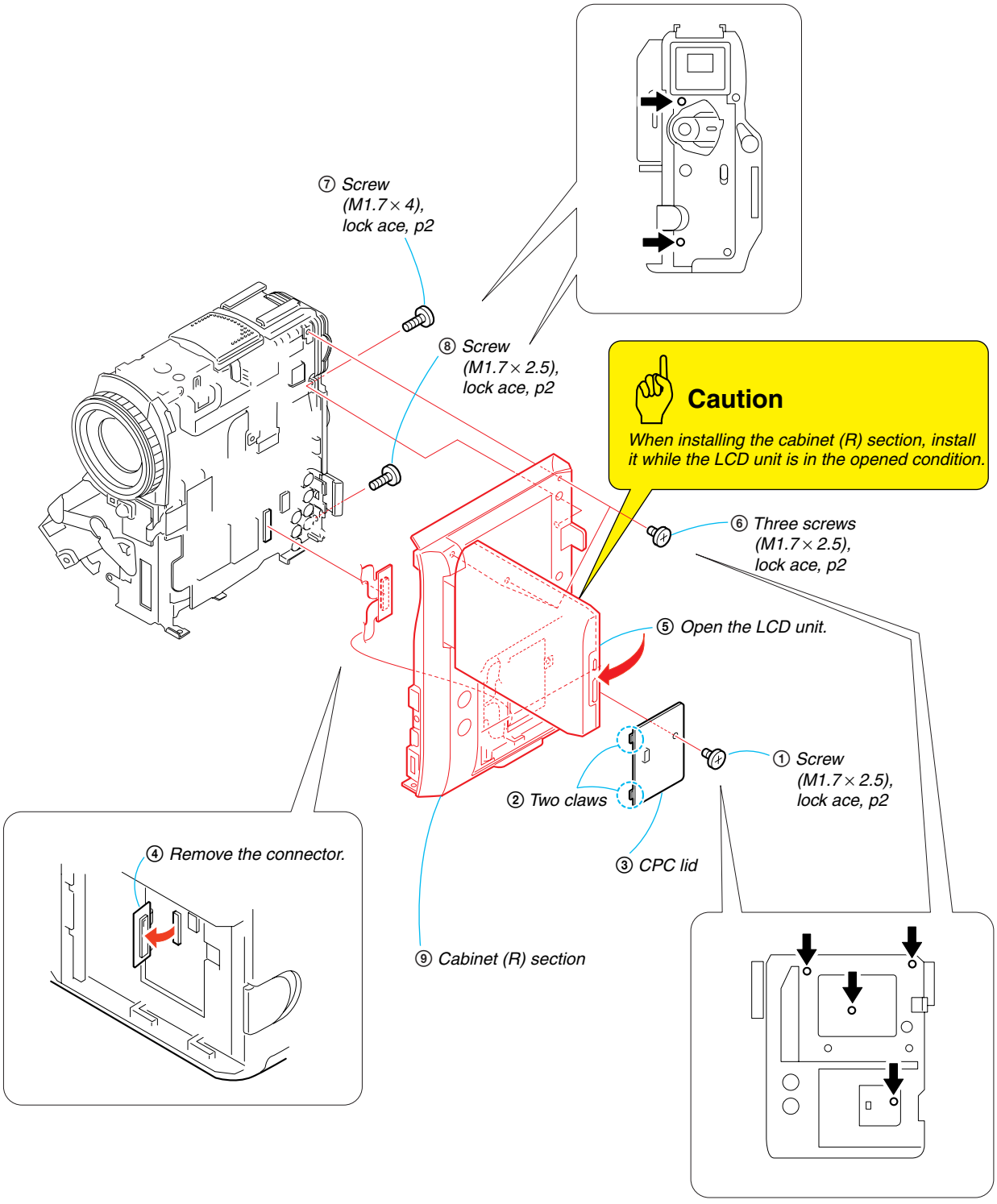
2-4. CABINET (L)


⑤ Cabinet (L)
④ Three screws (M1.7 × 2.5), lock ace, p2
① Screw (M1.7 × 4), lock ace, p2
② Flip over the jack cover (L) assembly.
③ Screw (M1.7 × 2.5), lock ace, p2
⑥ Jack cover (L) assembly

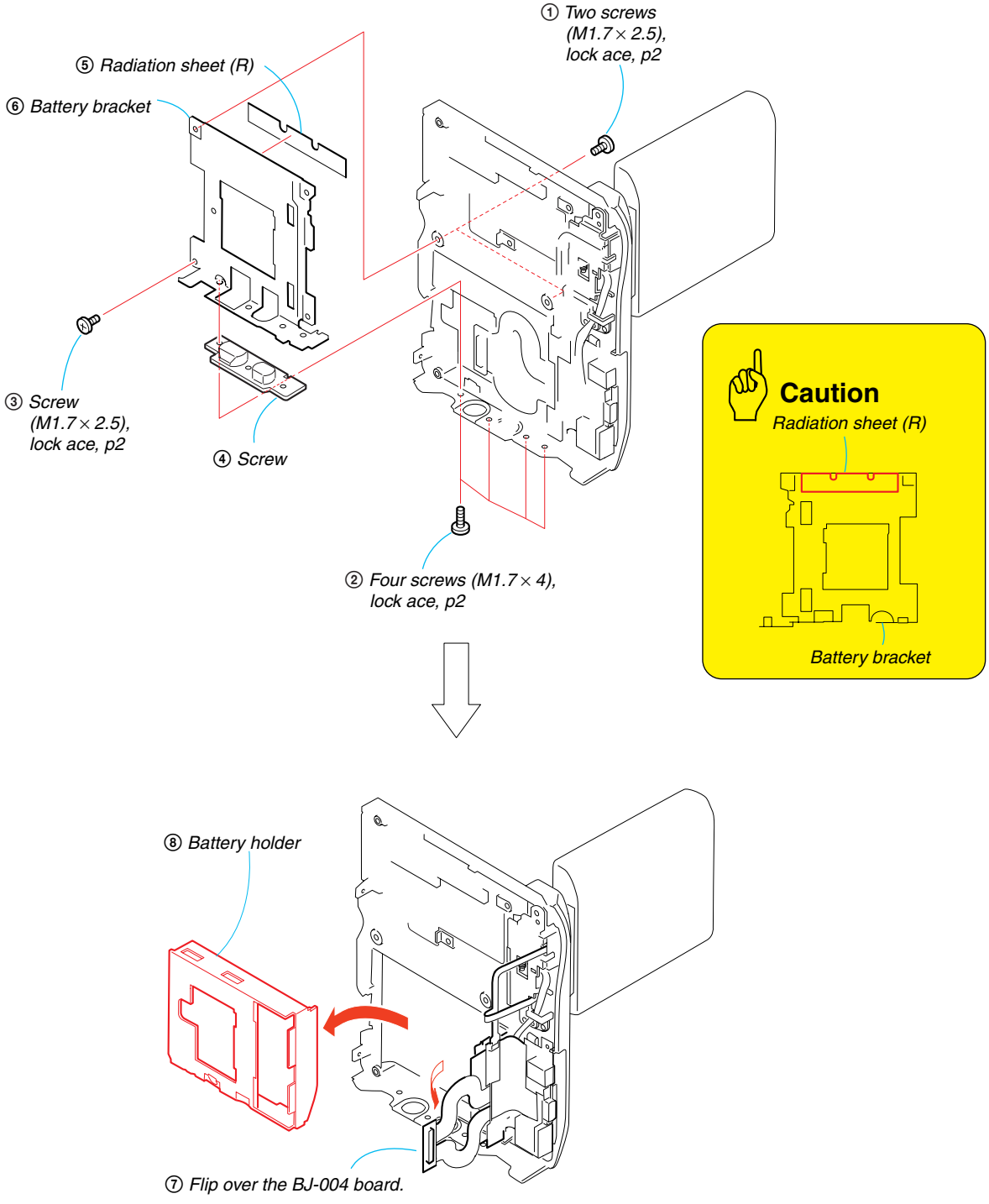
2-5. ST CABINET (UPPER) ASSEMBLY


(PC105/PC105E)
③ EG grip (M1.7 × 2.5)
⑥ ST cabinet (upper) assembly
⑤ Two claws
② EG grip (M1.7 × 2.5)
④ Two claws
① Push the portion Ⓐ in the direction of the arrow to open the Flash.
Ⓐ
(PC103E/PC104E)
③ ST cabinet (N) assembly
② EG grip (M1.7 × 2.5)
① EG grip (M1.7 × 2.5)
Caution
Note: The power supply capacitor of the flash unit is charged to the high tension voltage as high as 300 V at a maximum. You will get electrical shock when you touch the terminal of the charged capacitor . The charged potential remains even after the main power of the machine is turned off. Discharge the remaining power in the capacitor referring to Service Note (See page 1-2). High-voltage cautions. Short jig (R: 1kΩ/1W)
Short jig (R: 1kΩ/1W)
Accessory shoe GND
Xenon tube

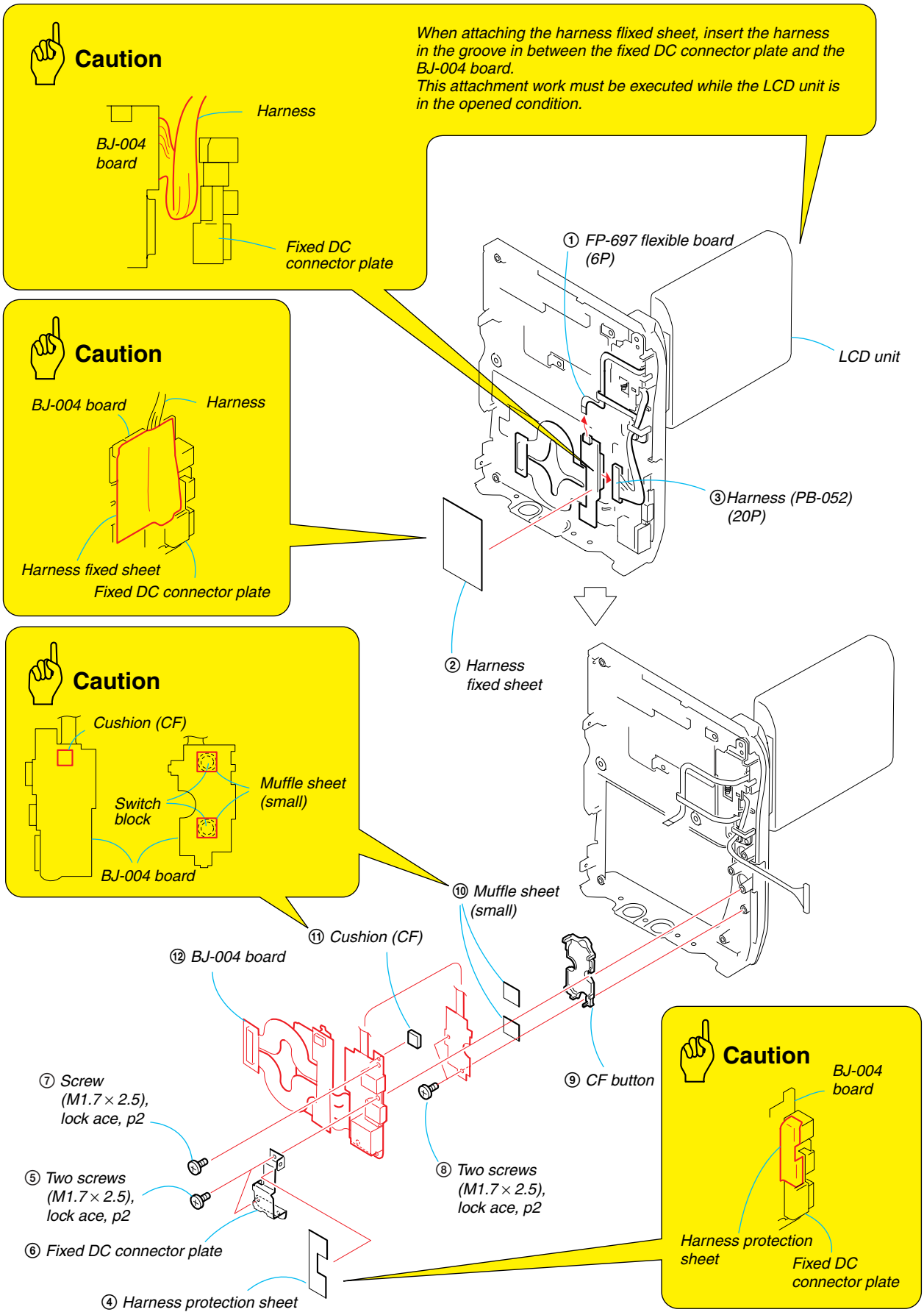
2-6. CABINET (R) SECTION


⑦ Screw (M1.7 × 4), lock ace, p2
⑧ Screw (M1.7 × 2.5), lock ace, p2
Caution
When installing the cabinet (R) section, install it while the LCD unit is in the opened condition.
⑥ Three screws (M1.7 × 2.5), lock ace, p2
⑤ Open the LCD unit.
① Screw (M1.7 × 2.5), lock ace, p2
② Two claws
③ CPC lid
④ Remove the connector.
⑨ Cabinet (R) section

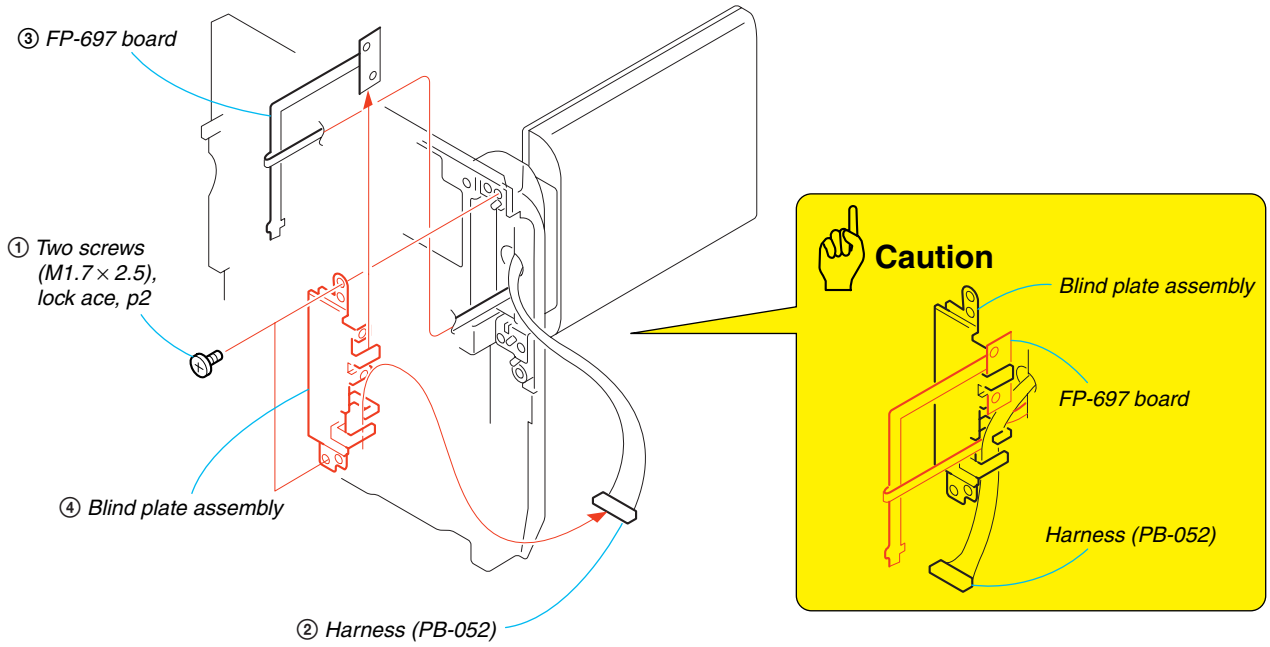
2-7. BATTERY HOLDER


① Two screws (M1.7 × 2.5), lock ace, p2
⑤ Radiation sheet (R)
⑥ Battery bracket
③ Screw (M1.7 × 2.5), lock ace, p2
④ Screw
② Four screws (M1.7 × 4), lock ace, p2
Caution
Radiation sheet (R)
Battery bracket
⑧ Battery holder
⑦ Flip over the BJ-004 board.

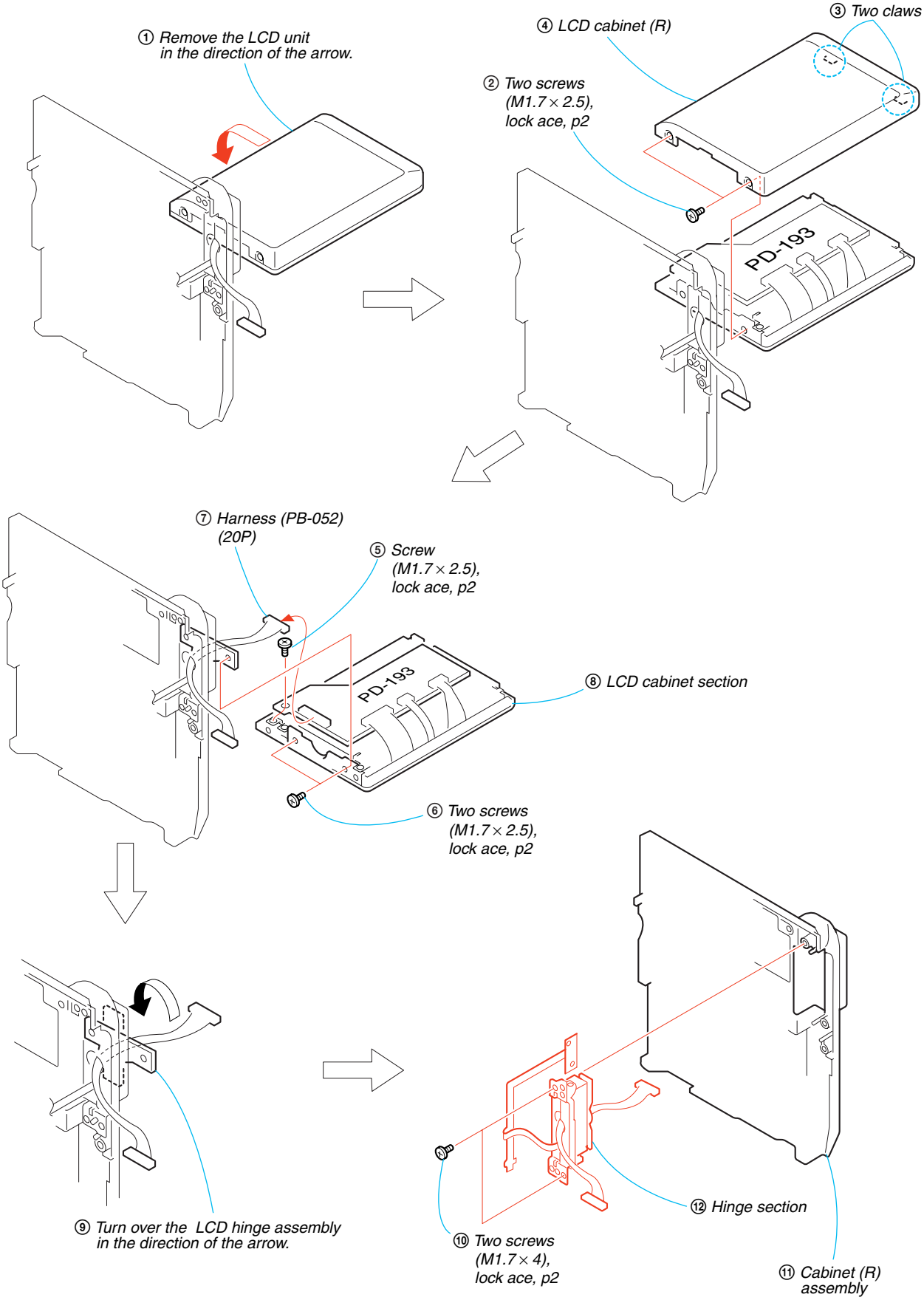
2-8. BJ-004 BOARD


Caution
When attaching the harness flixed sheet, insert the harness in the groove in between the fixed DC connector plate and the BJ-004 board.
This attachment work must be executed while the LCD unit is in the opened condition.
Harness
BJ-004 board
Fixed DC connector plate
Caution
BJ-004 board
Harness
Harness fixed sheet
Fixed DC connector plate
① FP-697 flexible board (6P)
LCD unit
③ Harness (PB-052) (20P)
② Harness fixed sheet
Caution
Cushion (CF)
Switch block
Muffle sheet (small)
BJ-004 board
⑩ Muffle sheet (small)
⑪ Cushion (CF)
⑫ BJ-004 board
⑨ CF button
⑦ Screw (M1.7 × 2.5), lock ace, p2
⑤ Two screws (M1.7 × 2.5), lock ace, p2
⑧ Two screws (M1.7 × 2.5), lock ace, p2
⑥ Fixed DC connector plate
④ Harness protection sheet
Caution
BJ-004 board
Harness protection sheet
Fixed DC connector plate

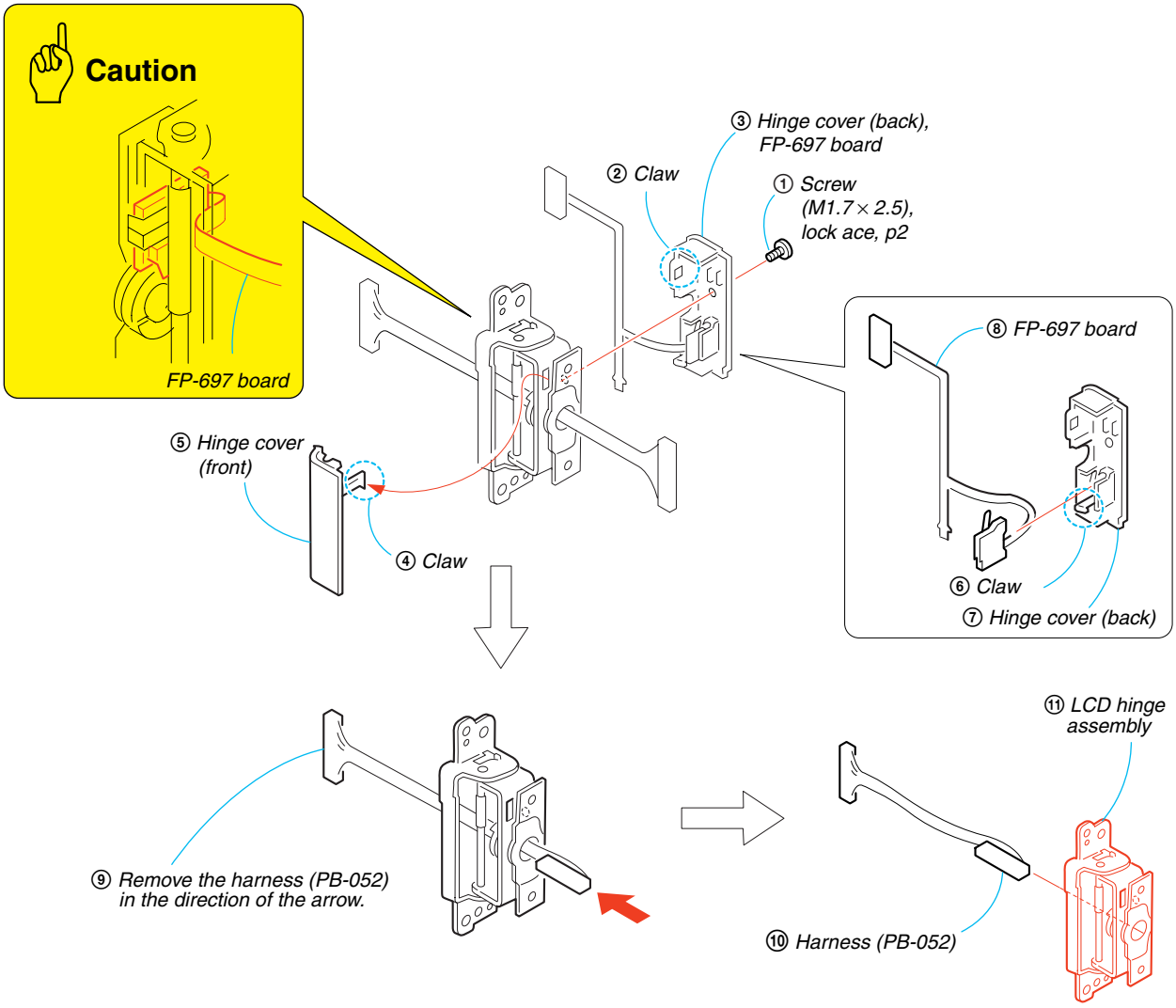
2-9. BLIND PLATE ASSEMBLY



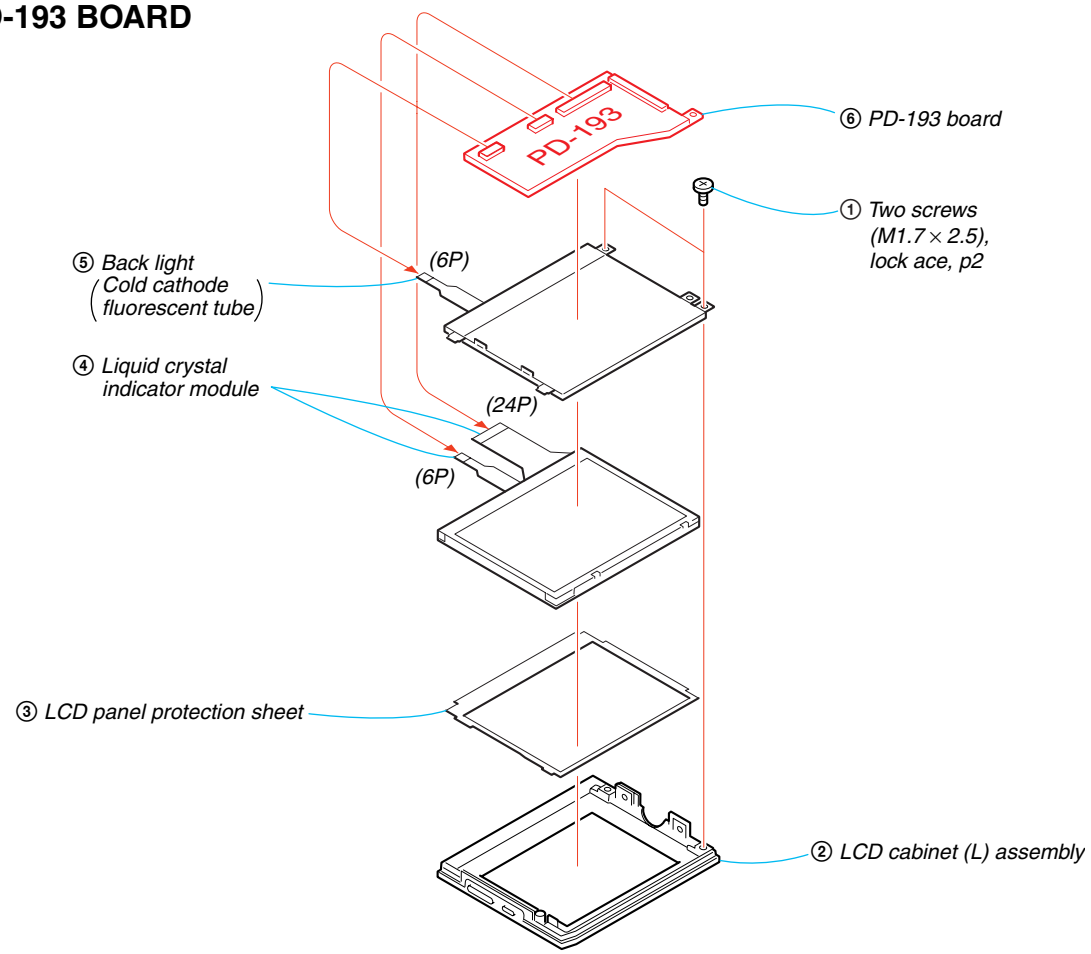
2-10. HINGE SECTION


① Remove the LCD unit in the direction of the arrow.
② Two screws (M1.7 × 2.5), lock ace, p2
③ Two claws
④ LCD cabinet (R)
PD-193
⑤ Screw (M1.7 × 2.5), lock ace, p2
⑥ Two screws (M1.7 × 2.5), lock ace, p2
⑦ Harness (PB-052) (20P)
⑧ LCD cabinet section
⑨ Turn over the LCD hinge assembly in the direction of the arrow.
⑩ Two screws (M1.7 × 4), lock ace, p2
⑪ Cabinet (R) assembly
⑫ Hinge section

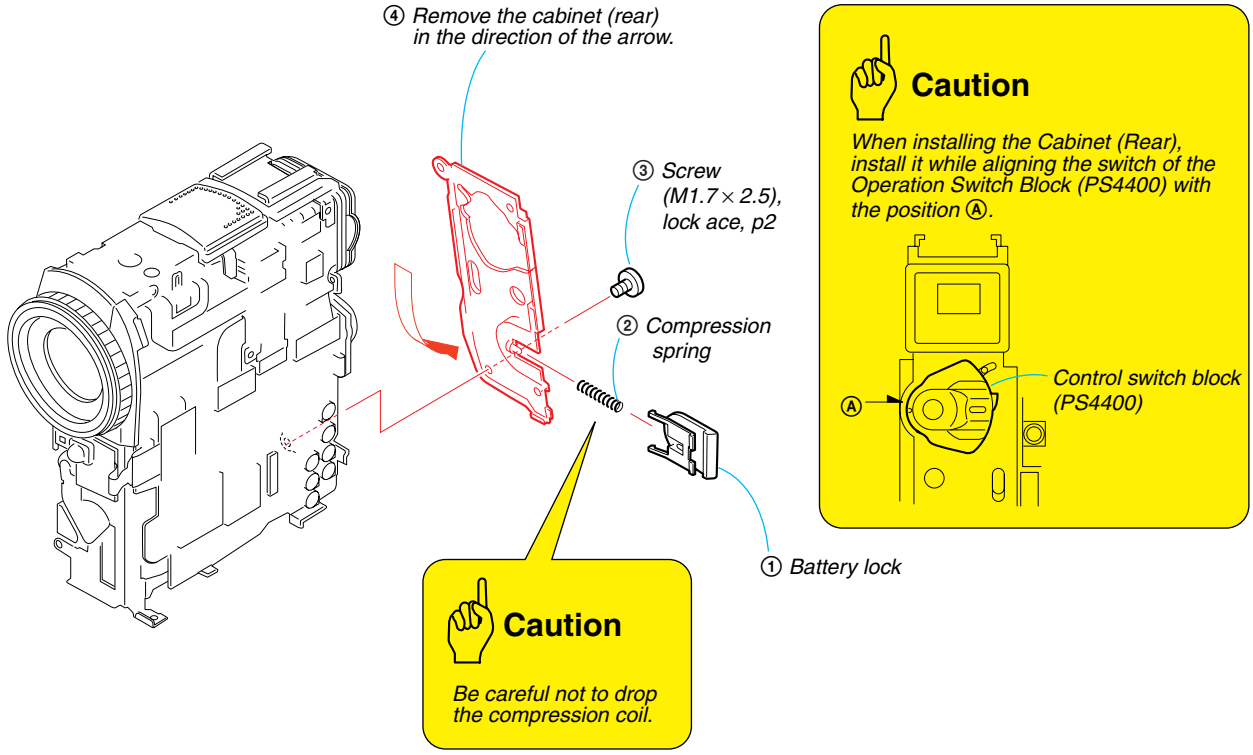
2-11. LCD HINGE ASSEMBLY


Caution
FP-697 board
③ Hinge cover (back), FP-697 board
② Claw
① Screw (M1.7 × 2.5), lock ace, p2
⑧ FP-697 board
⑤ Hinge cover (front)
④ Claw
⑥ Claw
⑦ Hinge cover (back)
⑪ LCD hinge assembly
⑨ Remove the harness (PB-052) in the direction of the arrow.
⑩ Harness (PB-052)

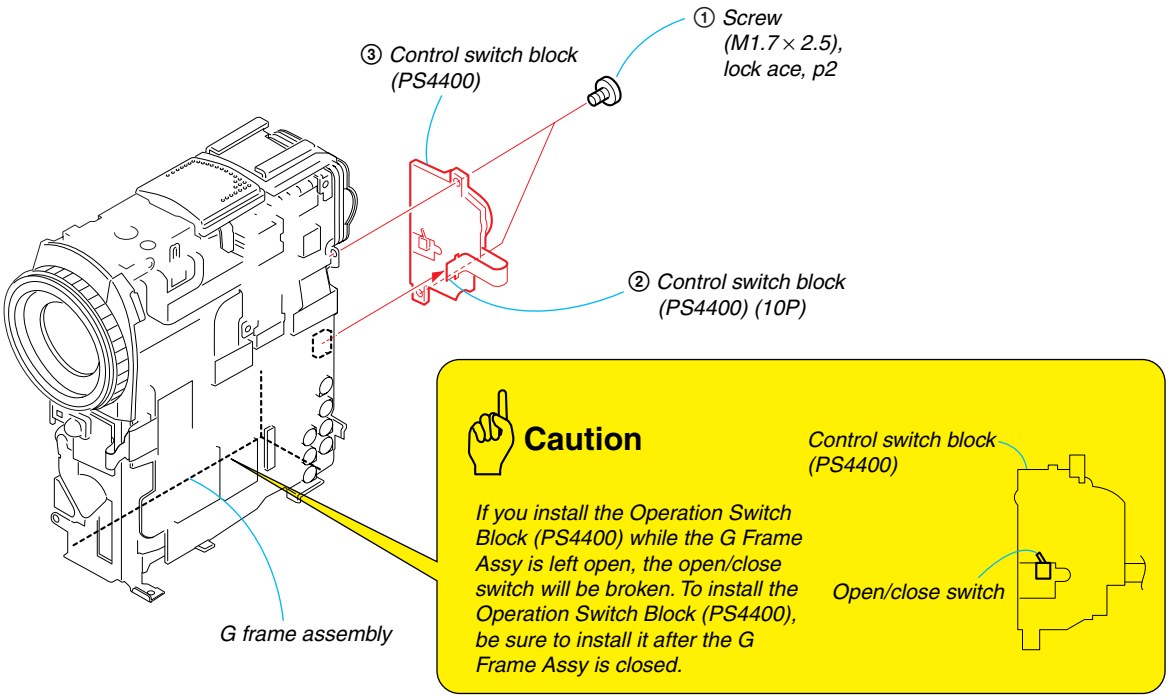
2-12. PD-193 BOARD



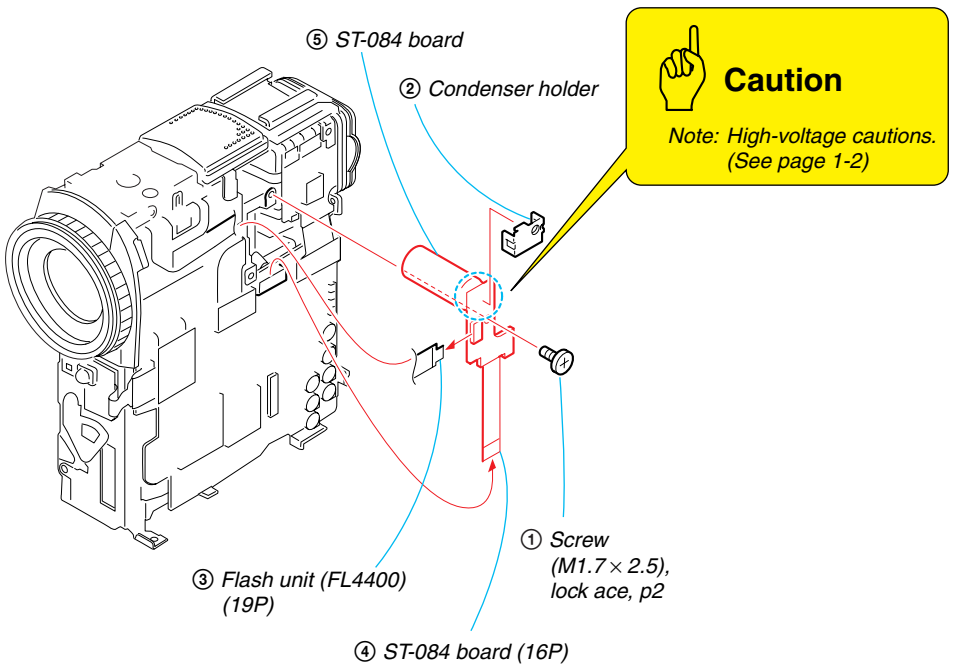
2-13. CABINET (REAR)


④ Remove the cabinet (rear) in the direction of the arrow.
③ Screw (M1.7 × 2.5), lock ace, p2
② Compression spring
① Battery lock
Caution
Be careful not to drop the compression coil.
Caution
When installing the Cabinet (Rear), install it while aligning the switch of the Operation Switch Block (PS4400) with the position Ⓐ.
Control switch block (PS4400)
Ⓐ

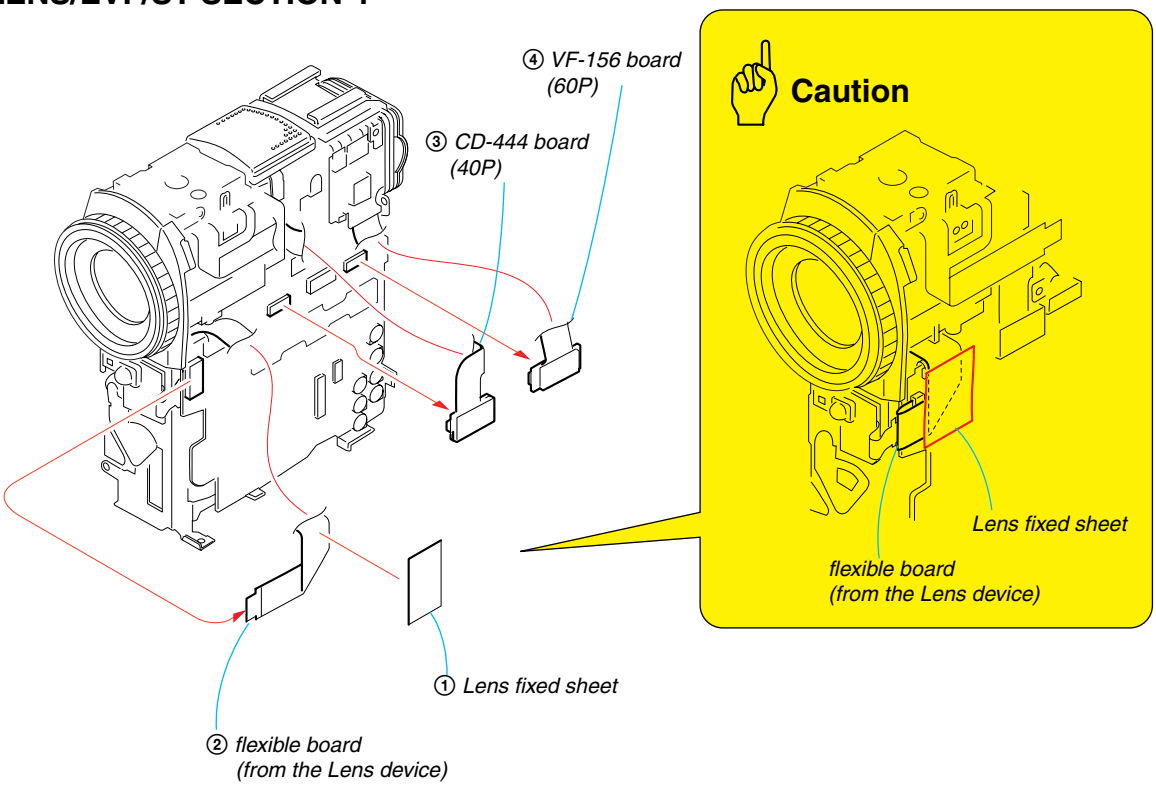
2-14. CONTROL SWITCH BLOCK (PS4400)


① Screw
(M1.7 × 2.5),
lock ace, p2
③ Control switch block
(PS4400)
② Control switch block
(PS4400) (10P)
G frame assembly
Caution
If you install the Operation Switch Block (PS4400) while the G Frame Assy is left open, the open/close switch will be broken. To install the Operation Switch Block (PS4400), be sure to install it after the G Frame Assy is closed.
Control switch block
(PS4400)
Open/close switch

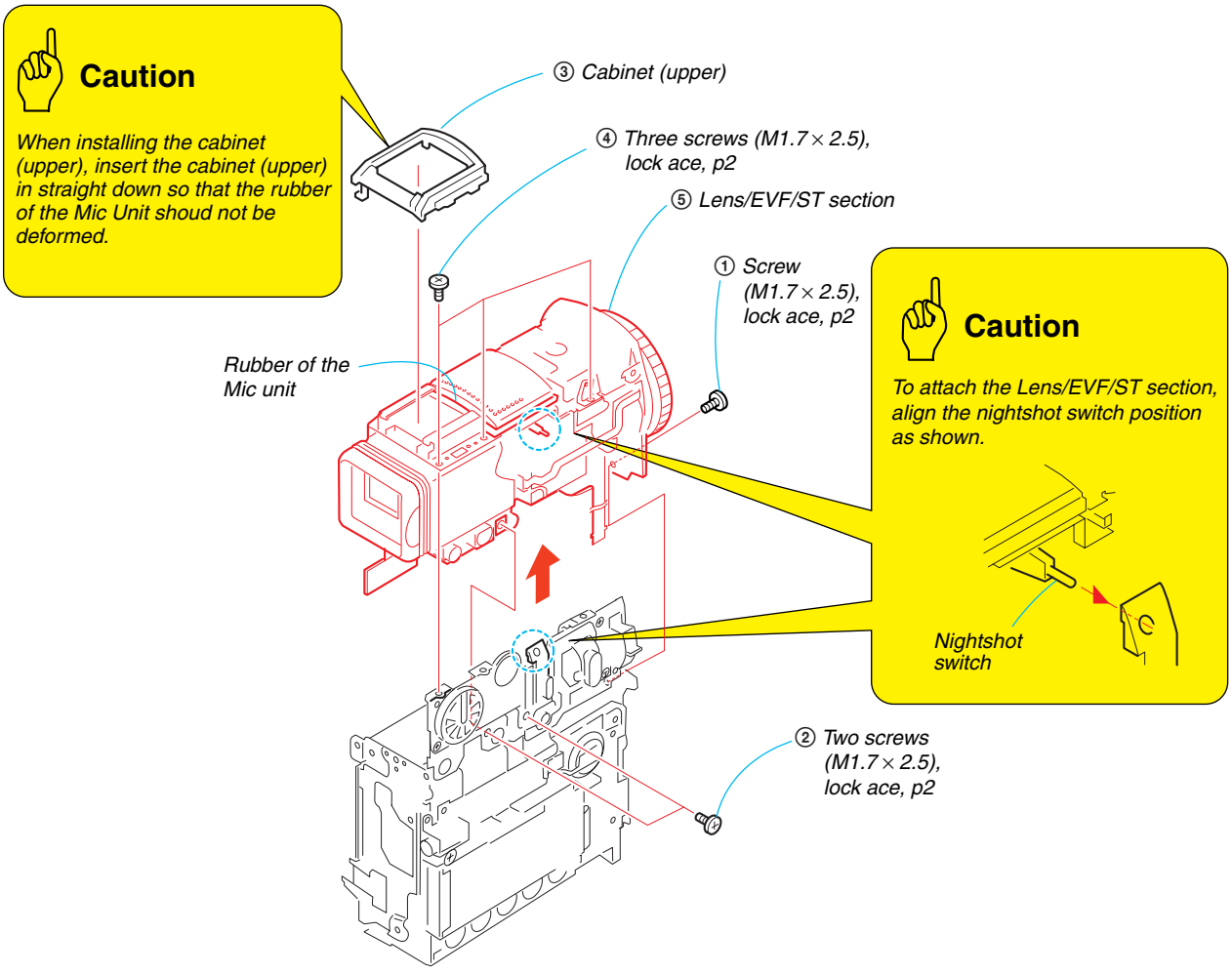
2-15. ST-084 BOARD (PC105/PC105E)



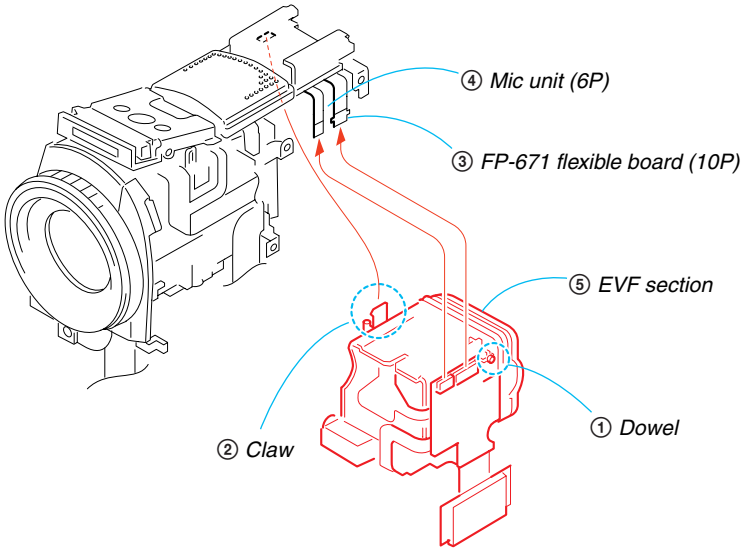
2-16. LENS/EVF/ST SECTION-1


④ VF-156 board (60P)
③ CD-444 board (40P)
Caution
Lens fixed sheet
flexible board (from the Lens device)
① Lens fixed sheet
② flexible board (from the Lens device)

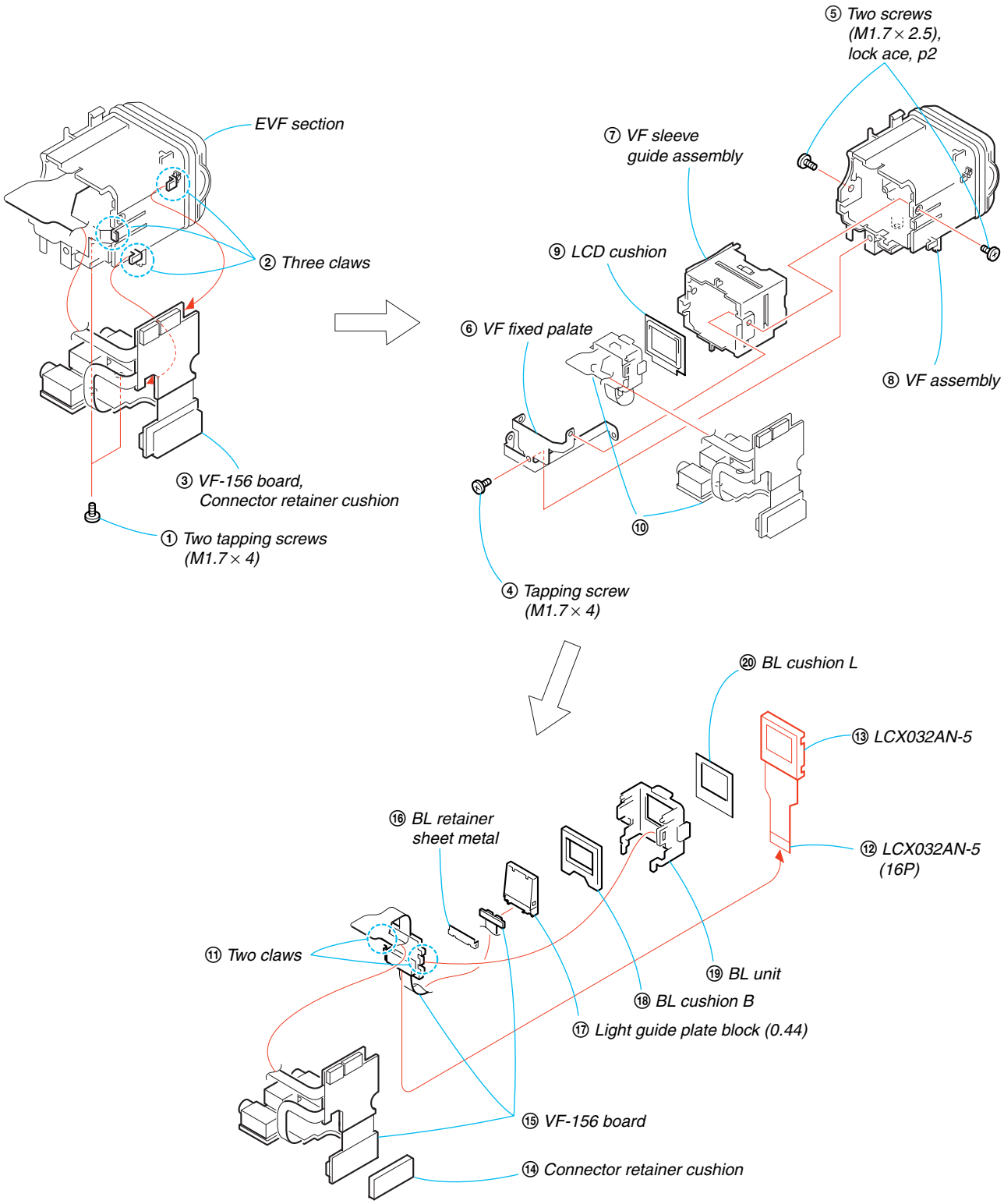
2-17. LENS/EVF/ST SECTION-2


Caution
When installing the cabinet (upper), insert the cabinet (upper) in straight down so that the rubber of the Mic Unit shoud not be deformed.
③ Cabinet (upper)
④ Three screws (M1.7 × 2.5), lock ace, p2
⑤ Lens/EVF/ST section
① Screw (M1.7 × 2.5), lock ace, p2
Rubber of the Mic unit
Caution
To attach the Lens/EVF/ST section, align the nightshot switch position as shown.
Nightshot switch
② Two screws (M1.7 × 2.5), lock ace, p2

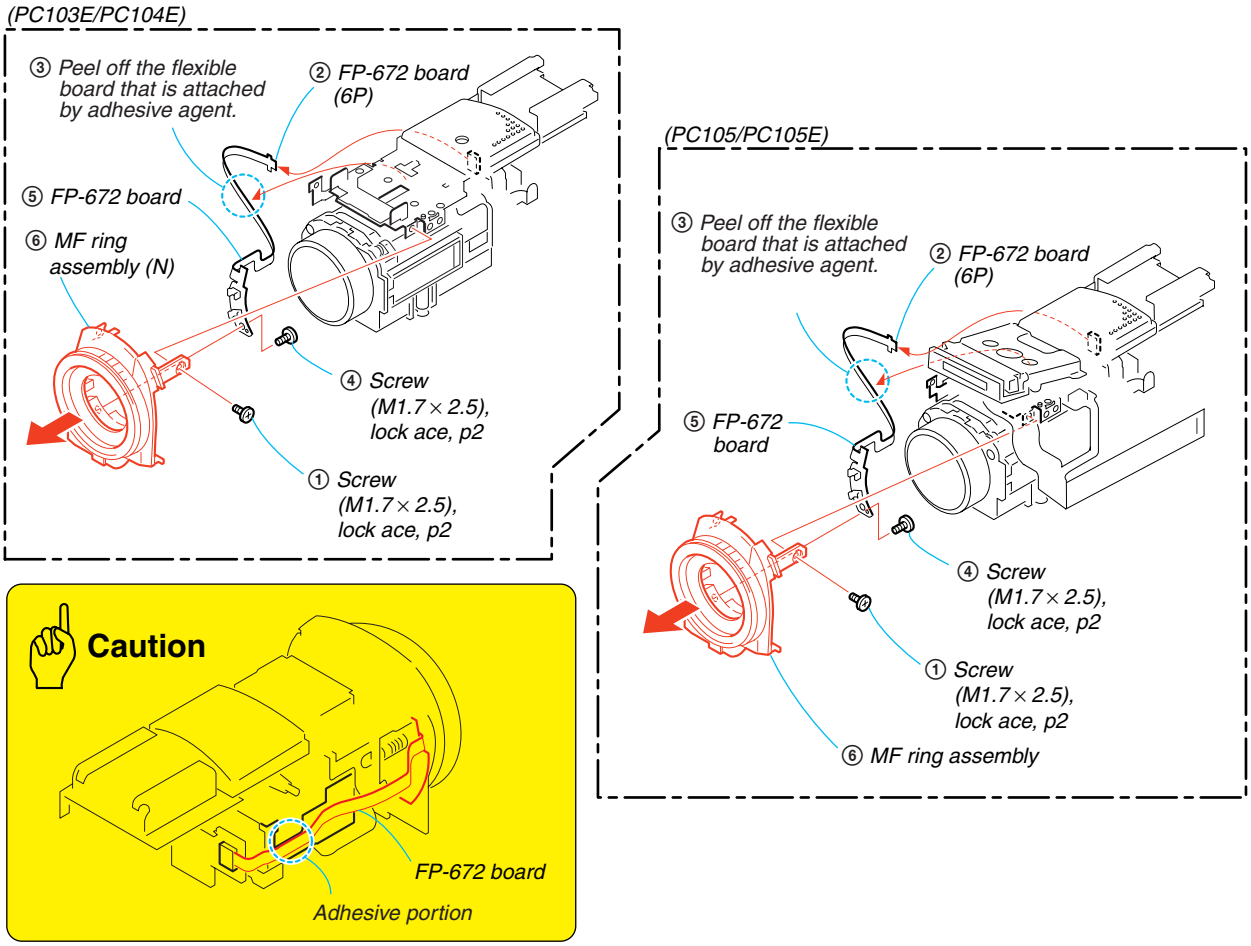
2-18. EVF SECTION



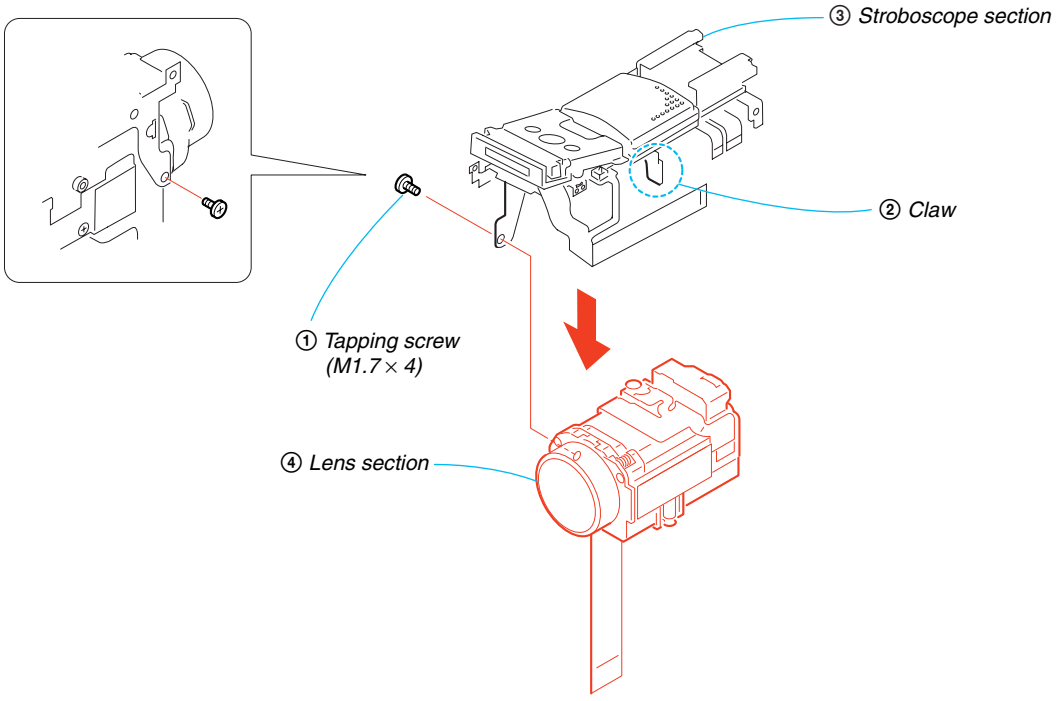
2-19. VF-156 BOARD



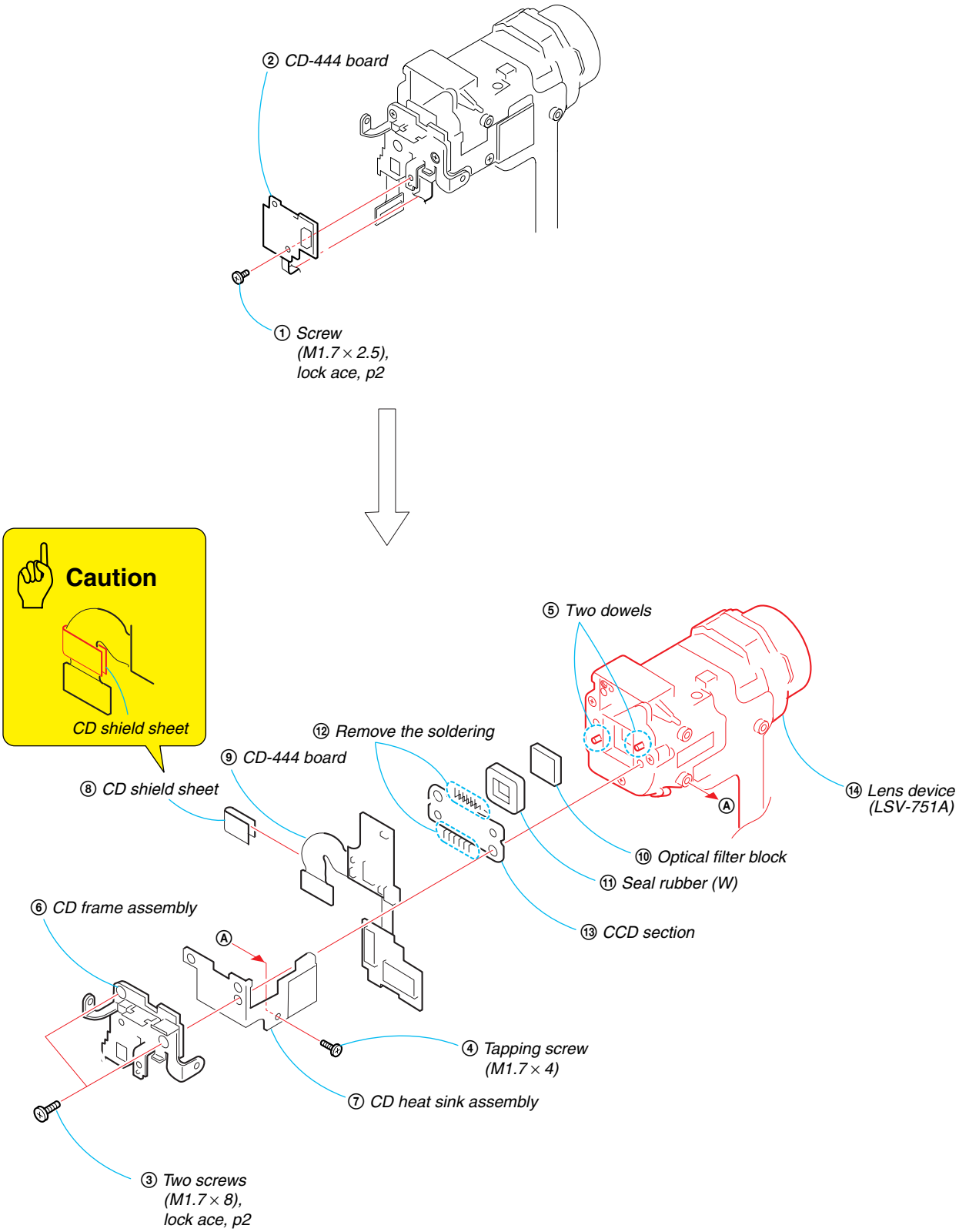
2-20. MF RING ASSEMBLY


(PC103E/PC104E)
③ Peel off the flexible board that is attached by adhesive agent.
② FP-672 board (6P)
⑤ FP-672 board
⑥ MF ring assembly (N)
④ Screw (M1.7 × 2.5), lock ace, p2
① Screw (M1.7 × 2.5), lock ace, p2
(PC105/PC105E)
③ Peel off the flexible board that is attached by adhesive agent.
② FP-672 board (6P)
⑤ FP-672 board
④ Screw (M1.7 × 2.5), lock ace, p2
① Screw (M1.7 × 2.5), lock ace, p2
⑥ MF ring assembly
Caution
FP-672 board
Adhesive portion

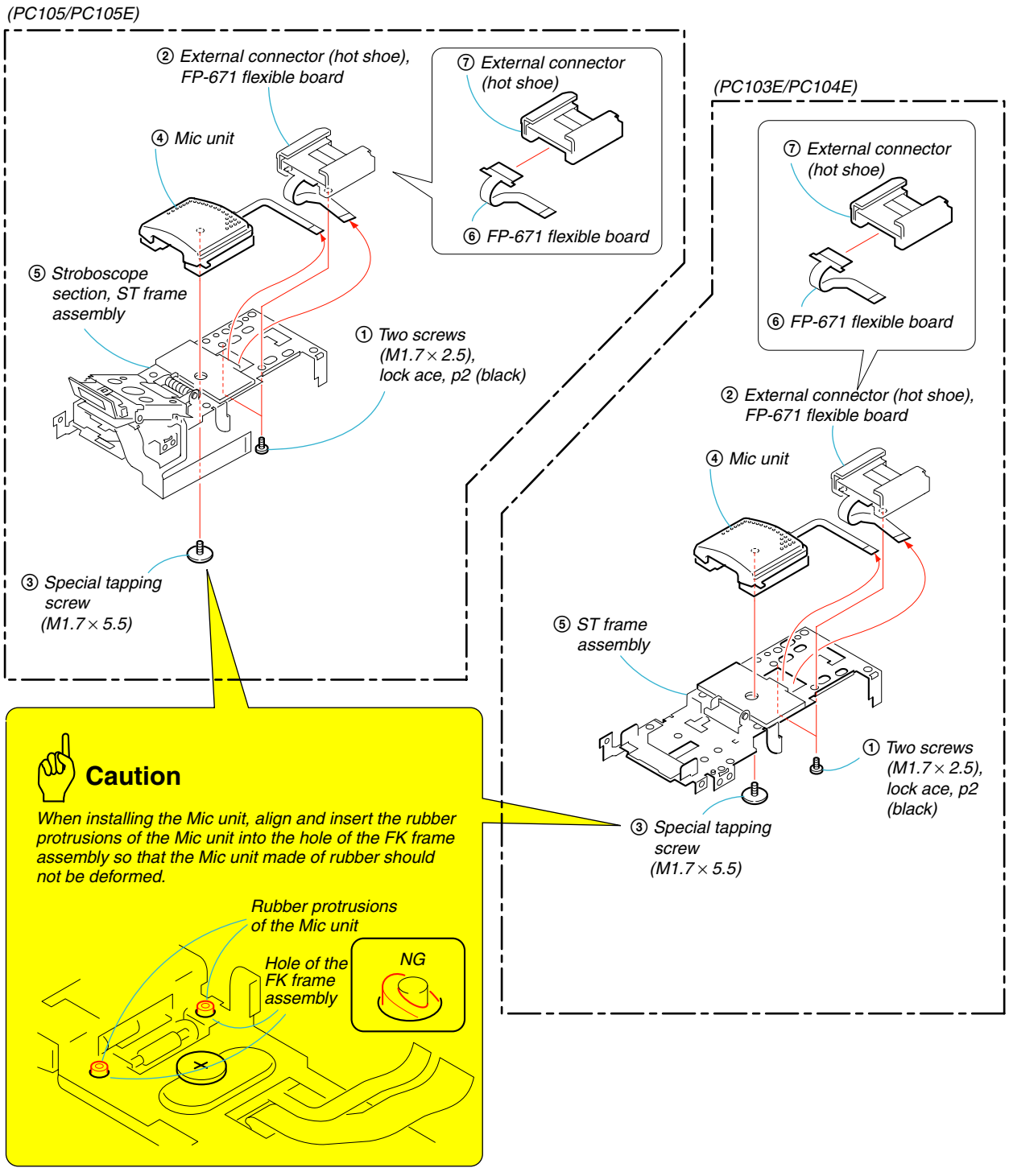
2-21. LENS SECTION



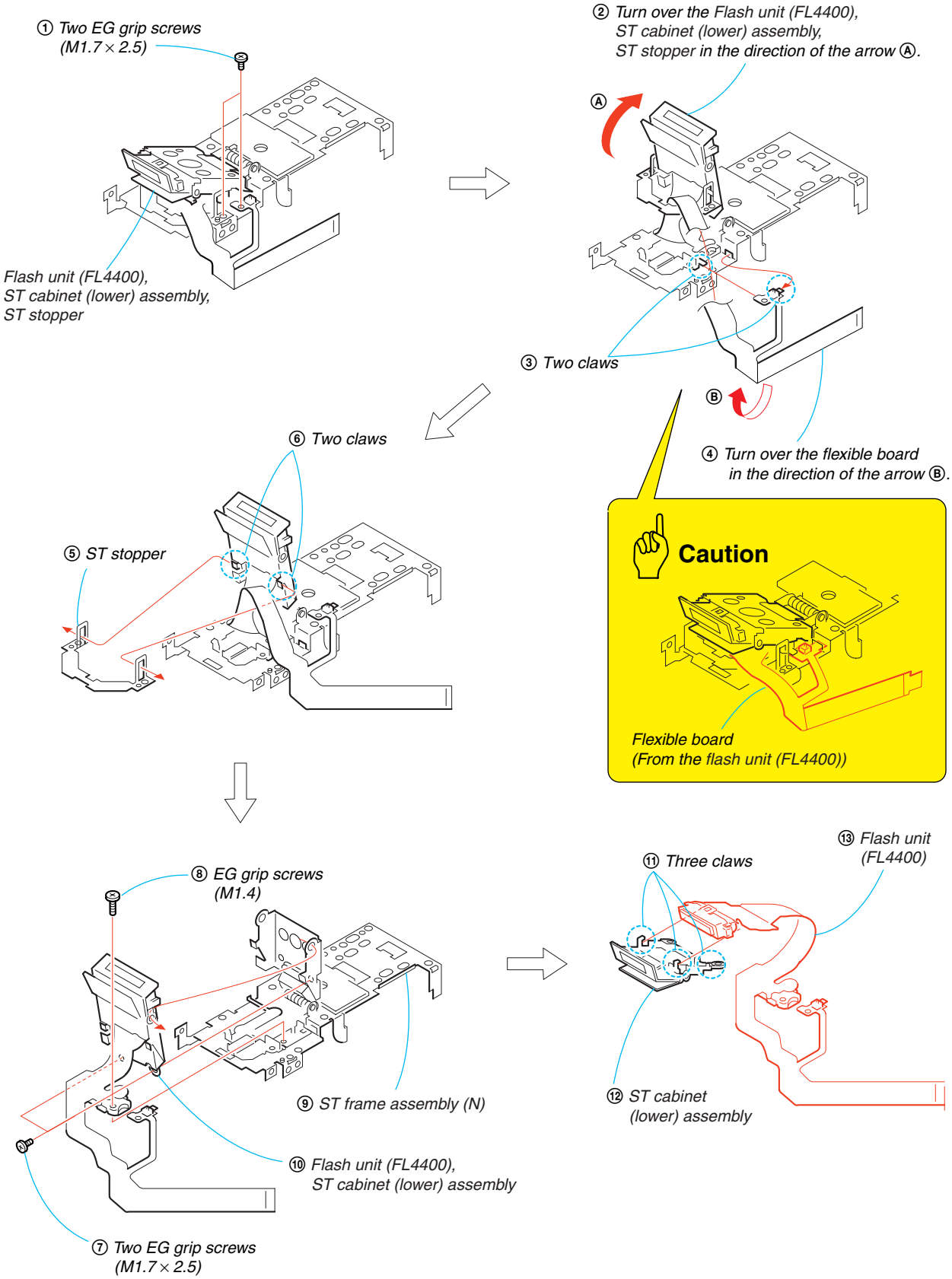
2-22. LENS DEVICE (LSV-751A)


② CD-444 board
① Screw (M1.7 × 2.5), lock ace, p2
Caution
CD shield sheet
⑤ Two dowels
⑫ Remove the soldering
⑨ CD-444 board
⑧ CD shield sheet
⑭ Lens device (LSV-751A)
⑩ Optical filter block
⑪ Seal rubber (W)
⑥ CD frame assembly
⑬ CCD section
④ Tapping screw (M1.7 × 4)
⑦ CD heat sink assembly
③ Two screws (M1.7 × 8), lock ace, p2

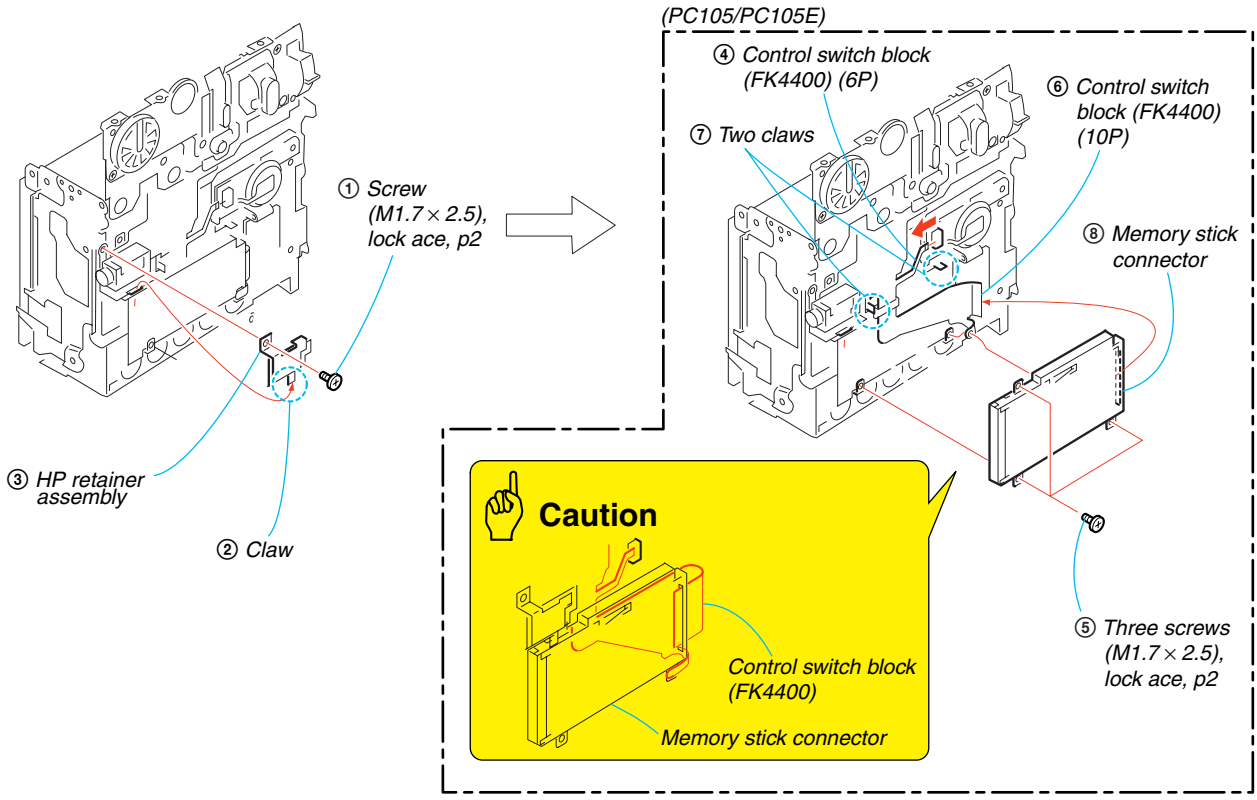
2-23. EXTERNAL CONNECTOR (HOT SHOE)


(PC105/PC105E)
② External connector (hot shoe), FP-671 flexible board
⑦ External connector (hot shoe)
④ Mic unit
⑥ FP-671 flexible board
⑤ Stroboscope section, ST frame assembly
① Two screws (M1.7 × 2.5), lock ace, p2 (black)
③ Special tapping screw (M1.7 × 5.5)
(PC103E/PC104E)
⑦ External connector (hot shoe)
⑥ FP-671 flexible board
② External connector (hot shoe), FP-671 flexible board
④ Mic unit
⑤ ST frame assembly
① Two screws (M1.7 × 2.5), lock ace, p2 (black)
③ Special tapping screw (M1.7 × 5.5)
Caution
When installing the Mic unit, align and insert the rubber protrusions of the Mic unit into the hole of the FK frame assembly so that the Mic unit made of rubber should not be deformed.
Rubber protrusions of the Mic unit
Hole of the FK frame assembly
NG

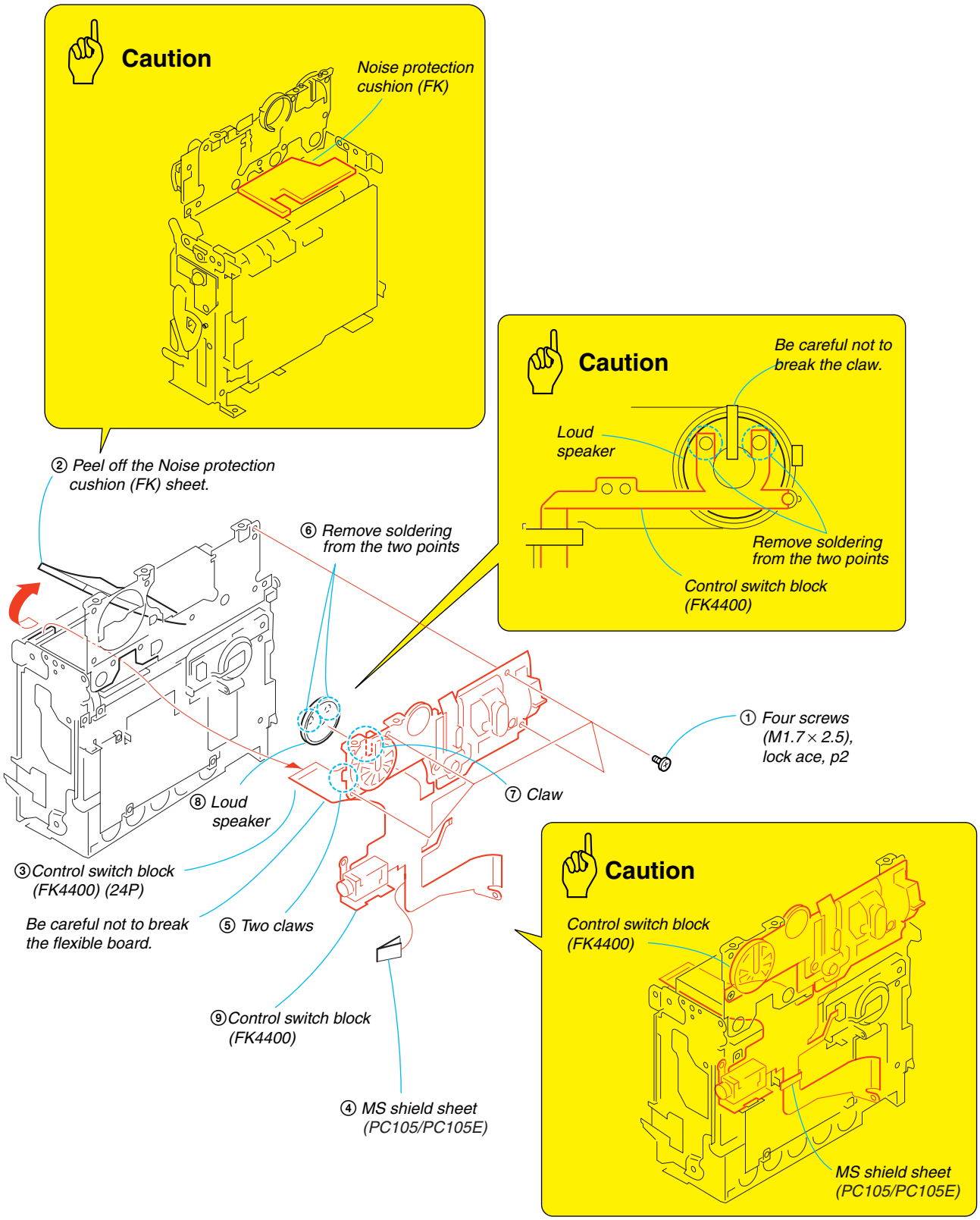
2-24. FLASH UNIT (FL4400) (PC105/PC105E)


① Two EG grip screws (M1.7 × 2.5)
Flash unit (FL4400), ST cabinet (lower) assembly, ST stopper
② Turn over the Flash unit (FL4400), ST cabinet (lower) assembly, ST stopper in the direction of the arrow Ⓐ.
Ⓐ
③ Two claws
Ⓑ
④ Turn over the flexible board in the direction of the arrow Ⓑ.
Caution
Flexible board (From the flash unit (FL4400))
⑤ ST stopper
⑥ Two claws
⑦ Two EG grip screws (M1.7 × 2.5)
⑧ EG grip screws (M1.4)
⑨ ST frame assembly (N)
⑩ Flash unit (FL4400), ST cabinet (lower) assembly
⑪ Three claws
⑫ ST cabinet (lower) assembly
⑬ Flash unit (FL4400)

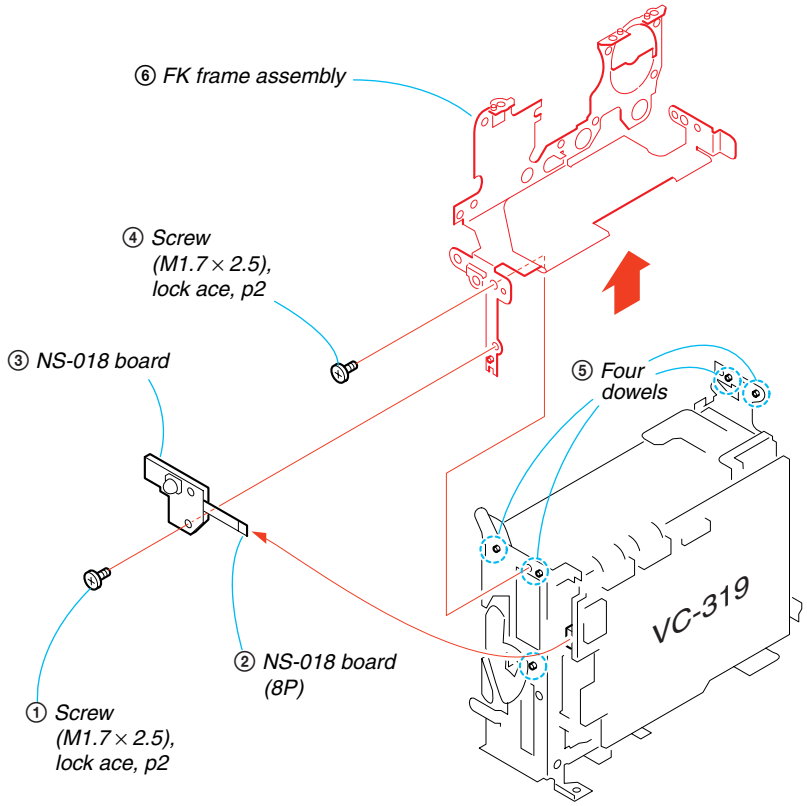
2-25. HP RETAINER ASSEMBLY, MEMORY STICK CONNECTOR (PC105/PC105E)


(PC105/PC105E)
① Screw (M1.7 × 2.5), lock ace, p2
② Claw
③ HP retainer assembly
④ Control switch block (FK4400) (6P)
⑤ Three screws (M1.7 × 2.5), lock ace, p2
⑥ Control switch block (FK4400) (10P)
⑦ Two claws
⑧ Memory stick connector
Caution
Control switch block (FK4400)
Memory stick connector

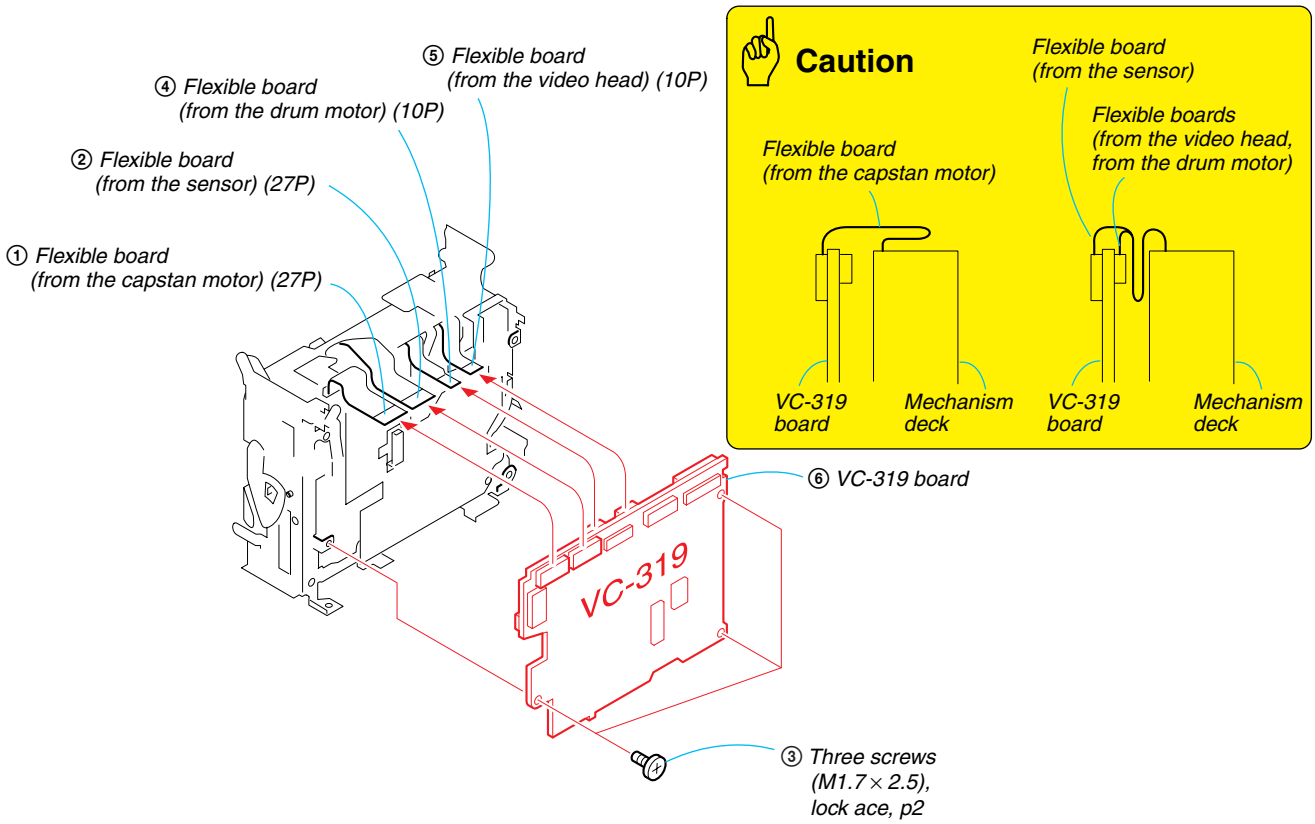
2-26. CONTROL SWITCH BLOCK (FK4400)


Caution
Noise protection cushion (FK)
② Peel off the Noise protection cushion (FK) sheet.
Caution
Be careful not to break the claw.
Loud speaker
Remove soldering from the two points
Control switch block (FK4400)
⑥ Remove soldering from the two points
① Four screws (M1.7 × 2.5), lock ace, p2
⑦ Claw
⑧ Loud speaker
③ Control switch block (FK4400) (24P)
Be careful not to break the flexible board.
⑤ Two claws
⑨ Control switch block (FK4400)
④ MS shield sheet (PC105/PC105E)
Caution
Control switch block (FK4400)
MS shield sheet (PC105/PC105E)

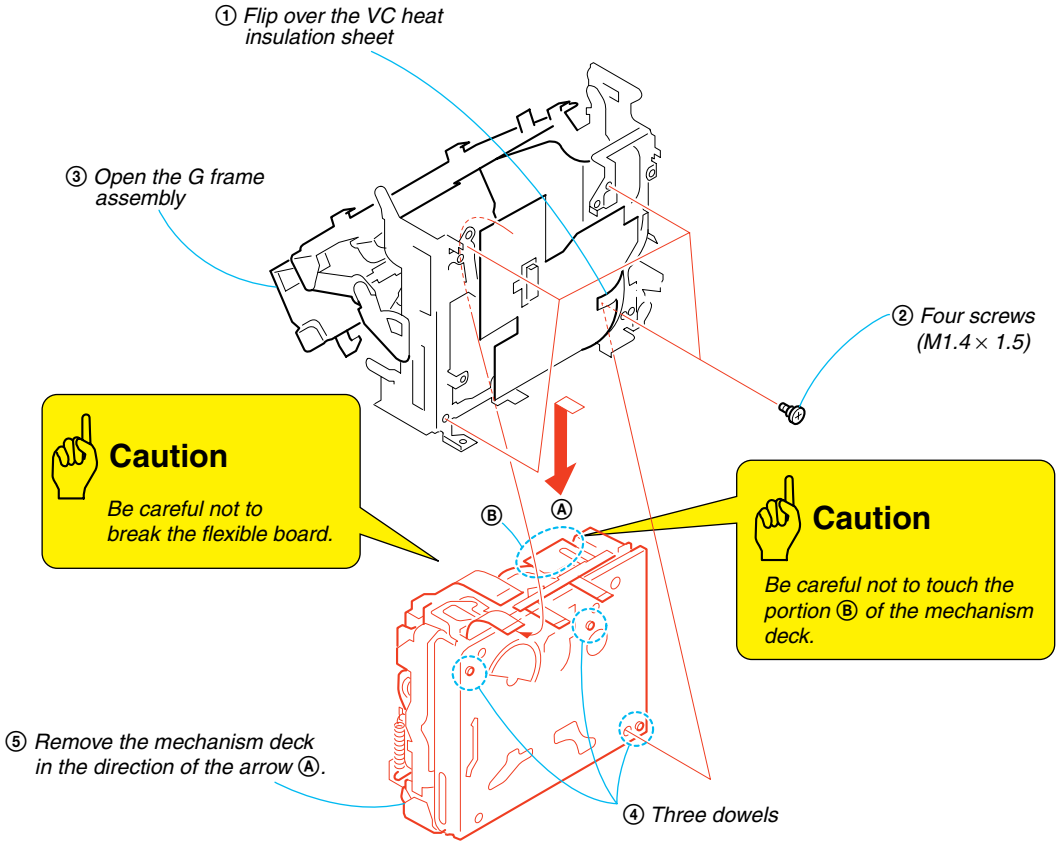
2-27. NS-018 BOARD, FK FRAME ASSEMBLY



2-28. VC-319 BOARD



2-29. MECHANISM DECK (Z100)


① Flip over the VC heat insulation sheet
③ Open the G frame assembly
② Four screws (M1.4 × 1.5)
Caution
Be careful not to break the flexible board.
Caution
Be careful not to touch the portion Ⓑ of the mechanism deck.
Ⓑ
Ⓐ
⑤ Remove the mechanism deck in the direction of the arrow Ⓐ.
④ Three dowels

[SERVICE POSITION TO CHECK THE VTR SECTION]

Connection to Check the VTR Section

To check the VTR section, set the VTR to the "Forced VTR power ON" mode.
Operate the VTR functions using the adjustment remote commander (with the HOLD switch set in the OFF position).

Setting the "Forced VTR Power ON" mode

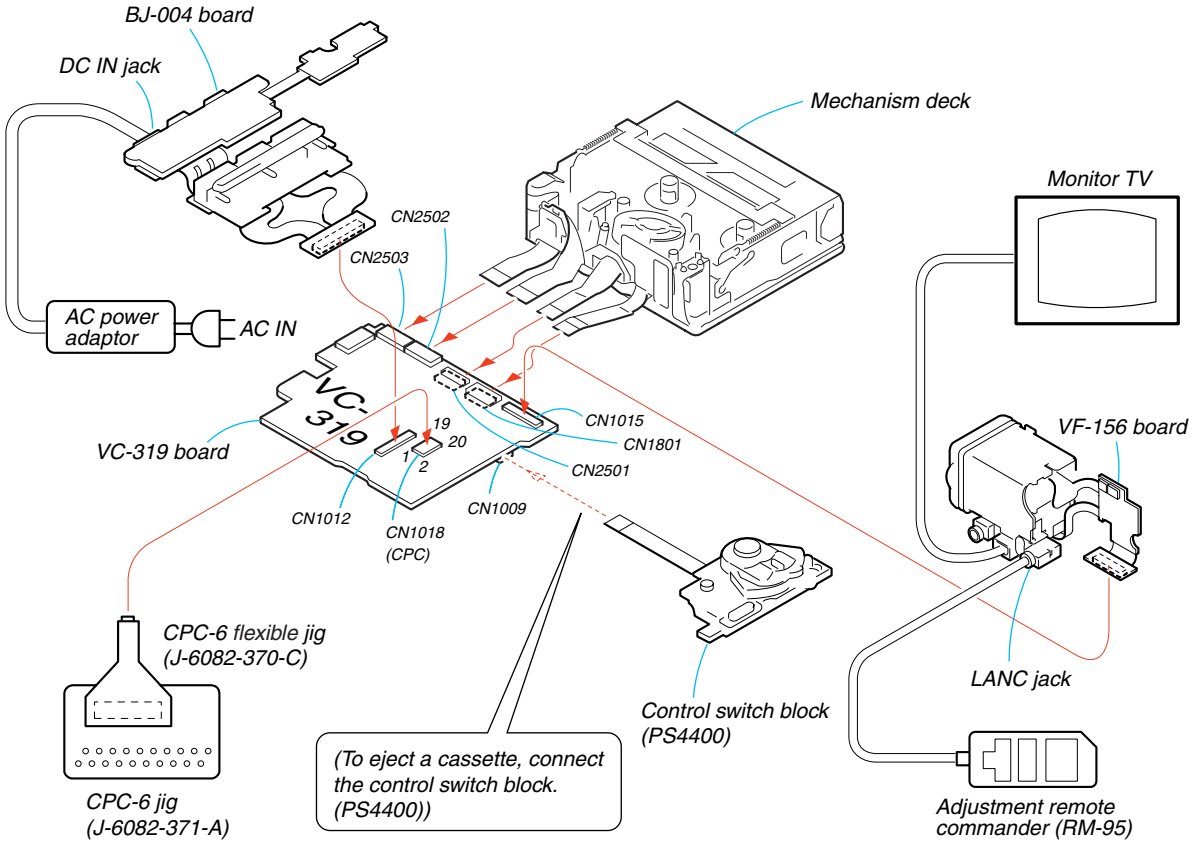
1) Select page: 0, address: 01, and set data: 01.
2) Select page: 0, address: 10, and set data: 00.
3) Select page: D, address: 10, set data: 02, and press the PAUSE button of the adjustment remote commander.

Exiting the "Forced VTR Power ON" mode

1) Select page: 0, address: 01, and set data: 01.
2) Select page: 0, address: 10, and set data: 00.
3) Select page: D, address: 10, set data: 00, and press the PAUSE button of the adjustment remote commander.
4) Select page: 0, address: 01, and set data: 00.

Note: When the flash error code (E: 91: **) is displayed. After completion of "VTR check", clear the error flag in the following method.

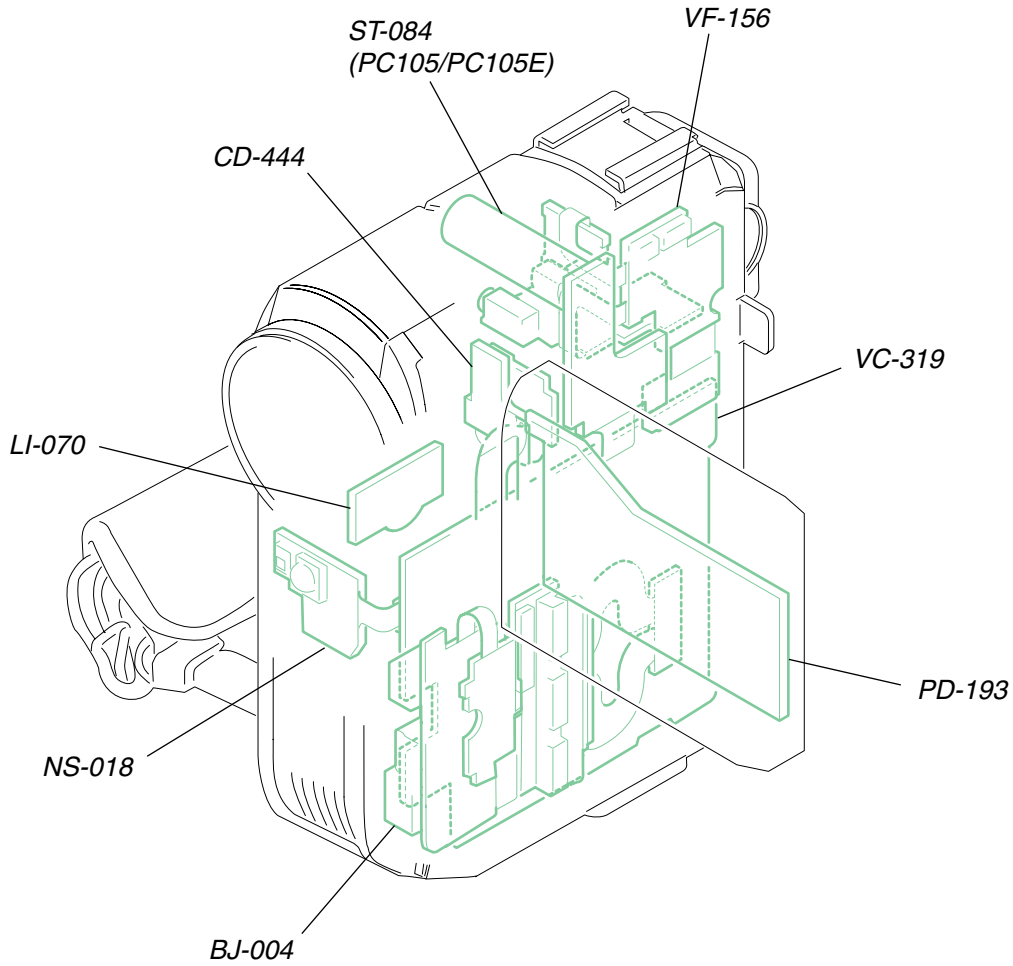
1) Select page: 0, address: 10, and set data: 00.
2) Select page: 7, address: 00, and set data: 80.
3) Select page: 7, address: 01, set data: 80 and press the PAUSE button.
4) Check that the data of page: 7, address: 02 is "01".



PROCEDURE OF REMOVING THE MECHANISM DECK. (VTR CHECK SERVICE POSITION)

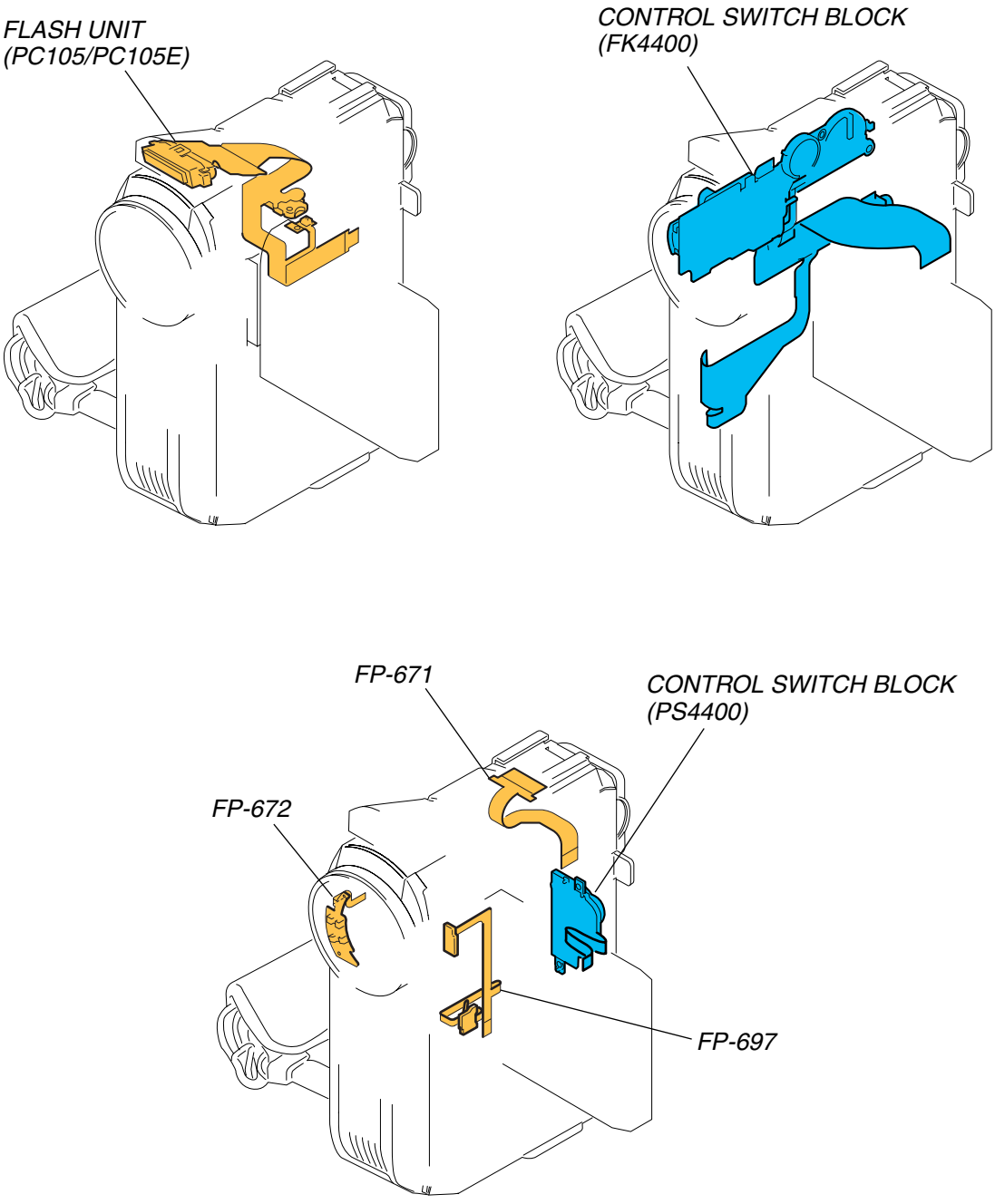
① 2-2. CABINET (FRONT) ASSEMBLY ..... (page 2-3)
② 2-3. CABINET (G) ASSEMBLY..... (page 2-3)
③ 2-4. CABINET (L)..... (page 2-4)
④ 2-5. ST CABINET (UPPER) ASSEMBLY..... (page 2-4)
⑤ 2-6. CABINET (R) SECTION..... (page 2-5)
⑥ 2-7. BATTERY HOLDER..... (page 2-6)
⑦ 2-8. BJ-004 BOARD..... (page 2-7)
⑧ 2-13. CABINET (REAR)..... (page 2-11)
⑨ 2-14. CONTROL SWITCH BLOCK (PS4400)..... (page 2-12)
⑩ 2-15. ST-084 BOARD (PC105/PC105E)..... (page 2-12)
⑪ 2-16. LENS/EVF/ST SECTION-1..... (page 2-13)
⑫ 2-17. LENS/EVF/ST SECTION-2..... (page 2-13)
⑬ 2-18. EVF SECTION..... (page 2-14)
⑭ 2-25. HR RETAINER ASSEMBLY, MEMORY STICK CONNECTOR (PC105/PC105E)..... (page 2-20)
⑮ 2-26. CONTROL SWITCH BLOCK (FK4400)..... (page 2-21)
⑯ 2-27. NS-018 BOARD, FK FRAME ASSEMBLY..... (page 2-22)
⑰ 2-28. VC-319 BOARD..... (page 2-22)
⑱ 2-29. MECHANISM DECK (Z100)..... (page 2-23)

2-30. CIRCUIT BOARDS LOCATION



NAME	FUNCTION
BJ-004	JACK
CD-444	CCD IMAGER
LI-070	BATTERY
NS-018	SIRCS, NS
PD-193	LCD RGB DRIVER
ST-084 (PC105/PC105E)	FLASH DRIVER
VC-319	TIMING GENERATOR, S/H, AGC, A/D, CAMERA PROCESS, LENS DRIVE, MPEG MOVIE/ DV STILL/AUDIO DIGITAL STILL CONTROL, DIGITAL STILL CONTROL, HI CONTROL, SDRAM/FLASH MEMORY, DV SIGNAL PROCESSOR, RF SIGNAL PROCESSOR, DV INTERFACE, REC/PB AMP, VIDEO IN/OUT, AGC, CAPSTAN/DRUM/LD MOTOR DRIVE, HI CONTROL, MECHA CONTROL, CAMERA CONTROL, EVF RGB DRIVER,TIMING GENERATOR, AUDIO I/O,A/D,D/A CONVERTER, CHARGE SWITCH, DC/DC CONVERTER, REGURATOR, CONNECTOR) PRINTED WIRING BOARD
VF-156	MIC AMP, JACK

2-31. FLEXIBLE BOARDS LOCATION

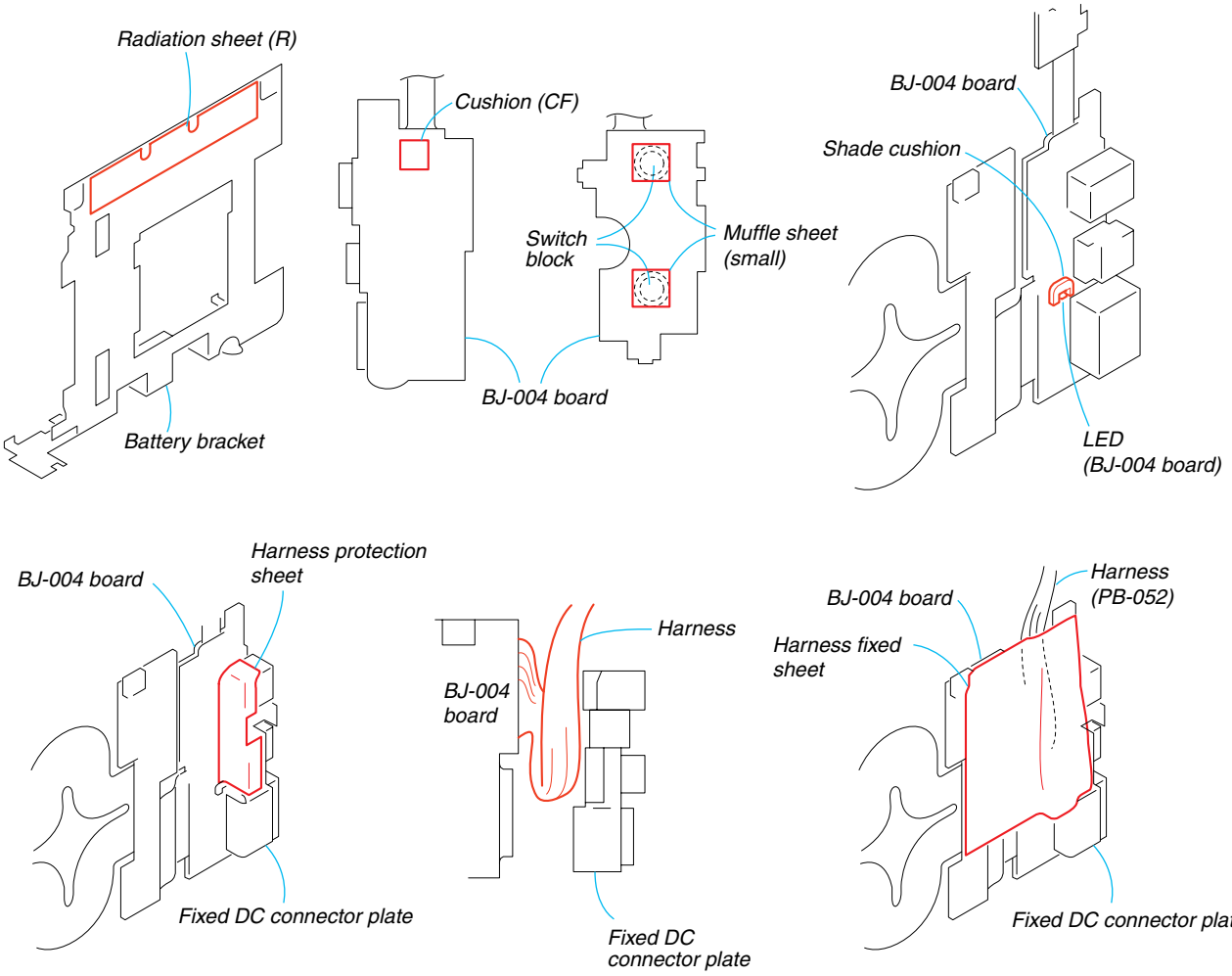


16/Apr/2003

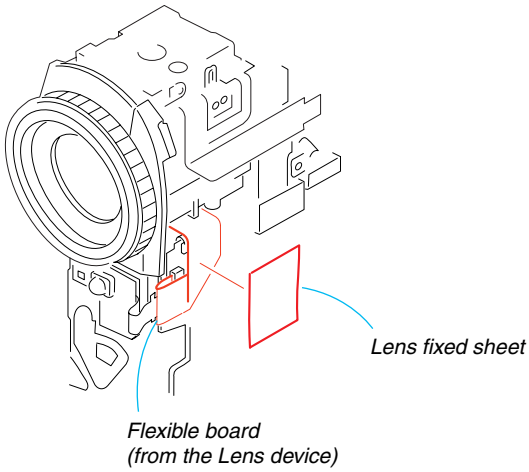
HELP

Sheet attachment positions and procedures of processing the flexible boards/harnesses are shown.

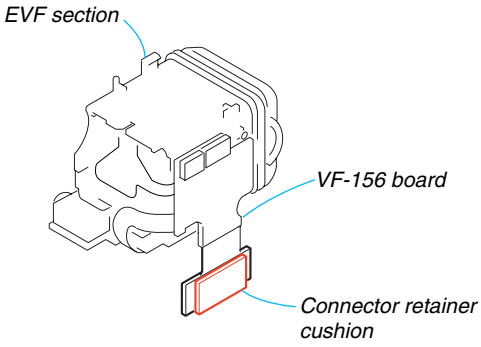
CABINET (R) SECTION

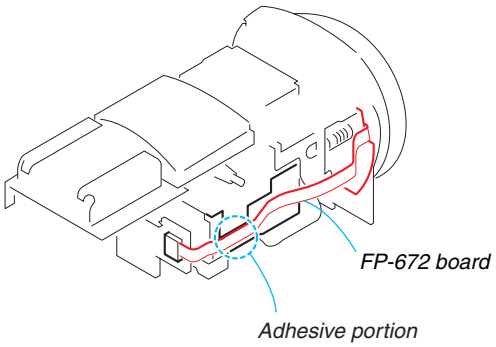


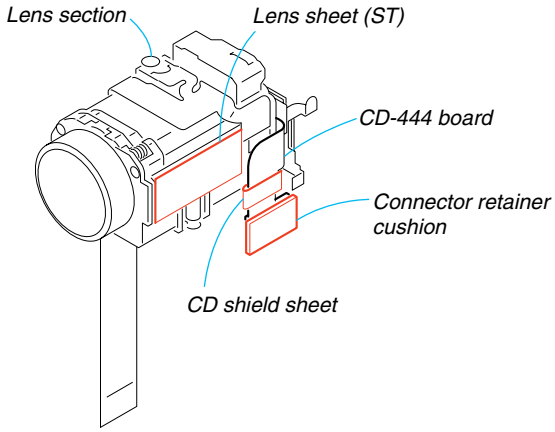
VTR OVERALL SECTION

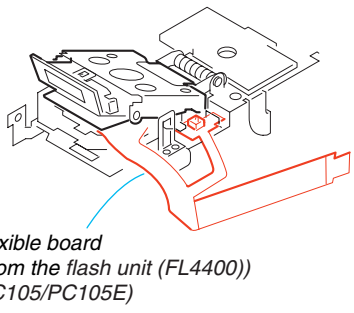


LENS/EVF/ST SECTION



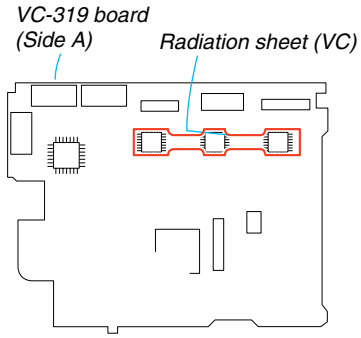


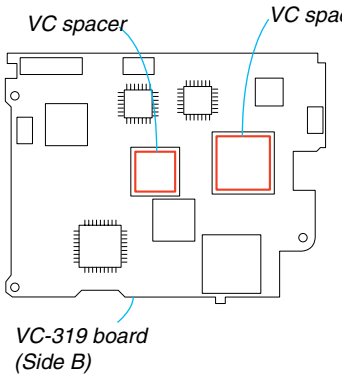


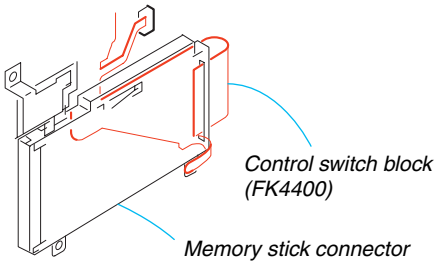


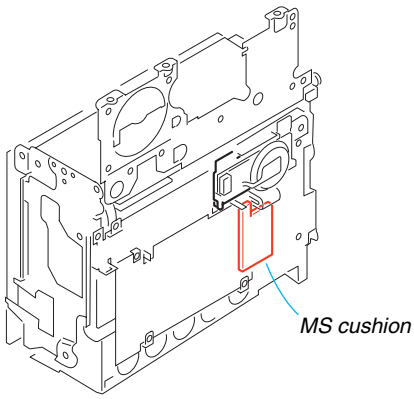
HELP

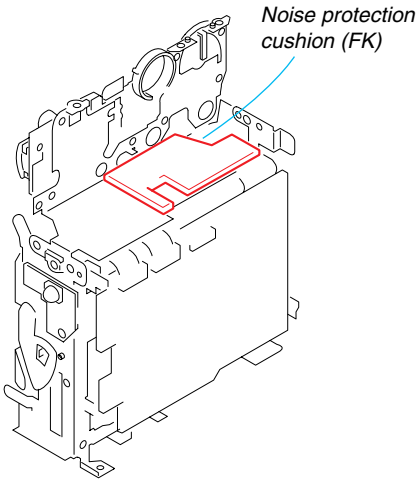
MD SECTION

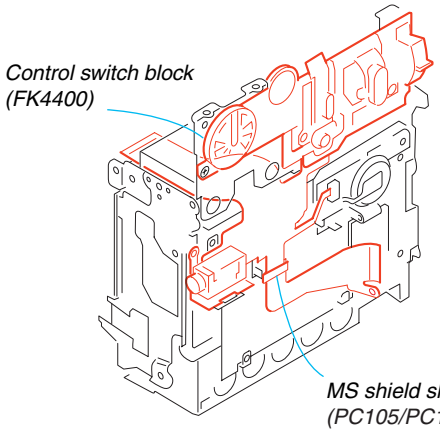

VC-319 board
(Side A)
Radiation sheet (VC)

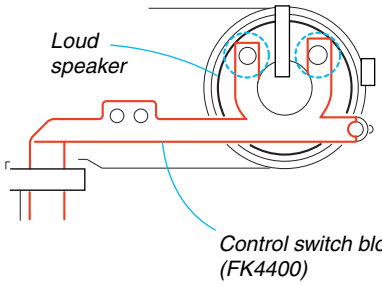

VC spacer
VC spacer (F)
VC-319 board
(Side B)

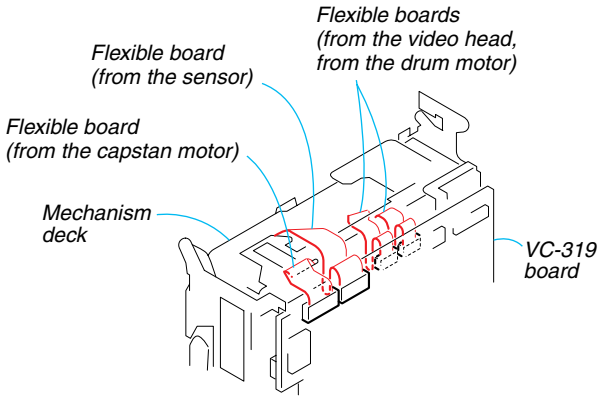

Control switch block
(FK4400)
Memory stick connector

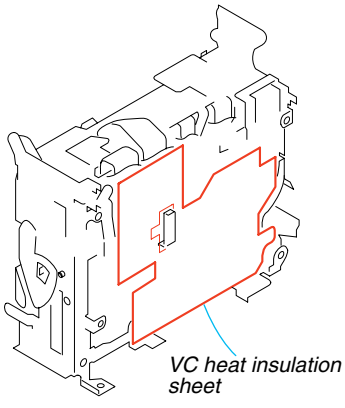

MS cushion

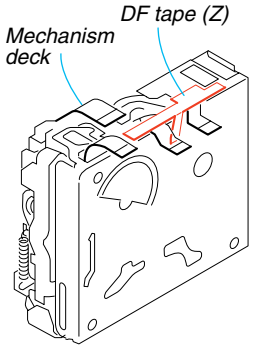

Noise protection
cushion (FK)


Control switch block
(FK4400)
MS shield sheet
(PC105/PC105E)


Loud
speaker
Control switch block
(FK4400)


Flexible boards
(from the video head,
from the drum motor)
Flexible board
(from the sensor)
Flexible board
(from the capstan motor)
Mechanism
deck
VC-319
board


VC heat insulation
sheet


DF tape (Z)
Mechanism
deck

COVER

3. BLOCK DIAGRAMS

Link

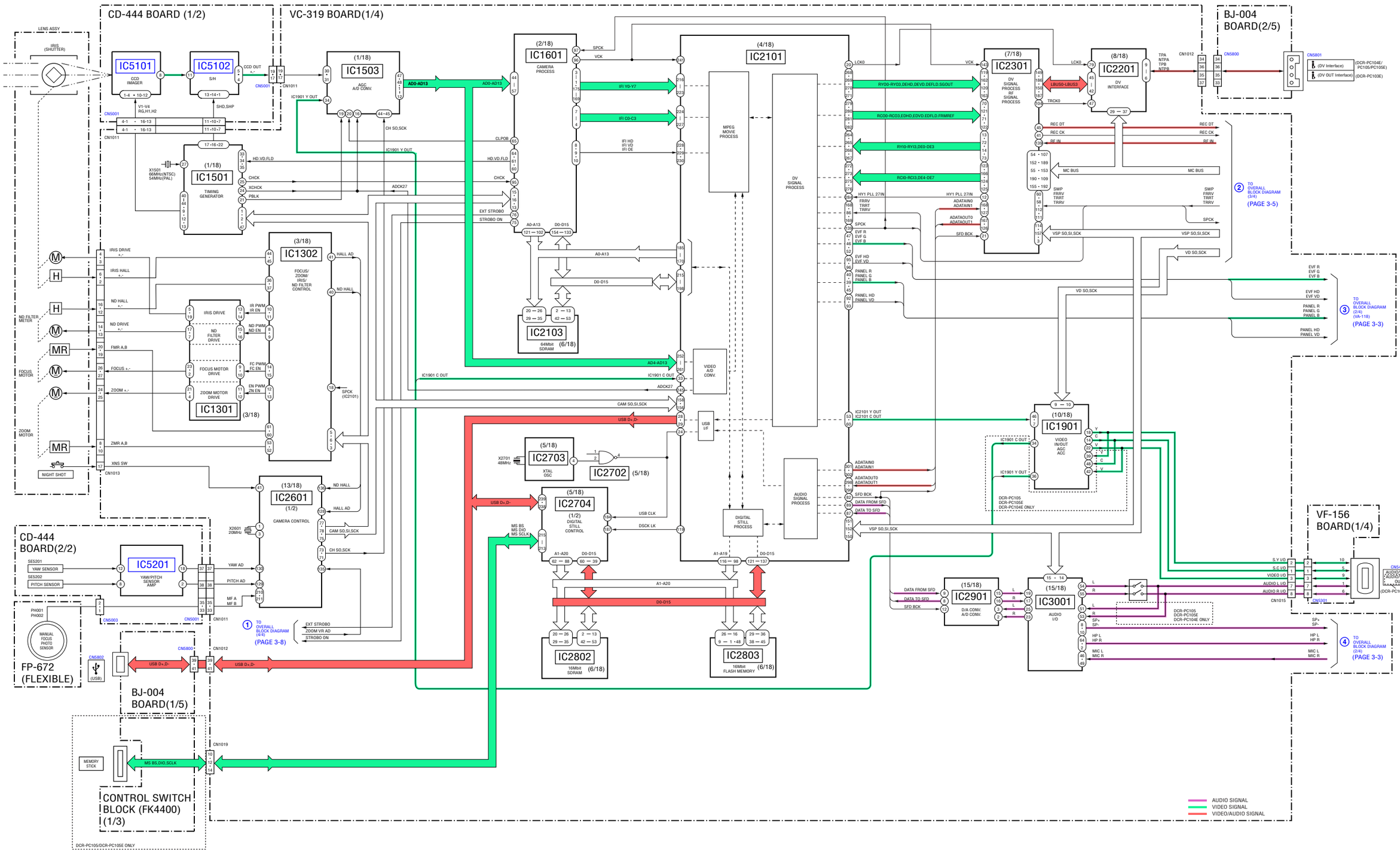
OVERALL BLOCK DIAGRAM (1/4)	POWER BLOCK DIAGRAM (1/2)
OVERALL BLOCK DIAGRAM (2/4)	POWER BLOCK DIAGRAM (2/2)
OVERALL BLOCK DIAGRAM (3/4)	
OVERALL BLOCK DIAGRAM (4/4)	

COVER

SECTION 3
BLOCK DIAGRAMS

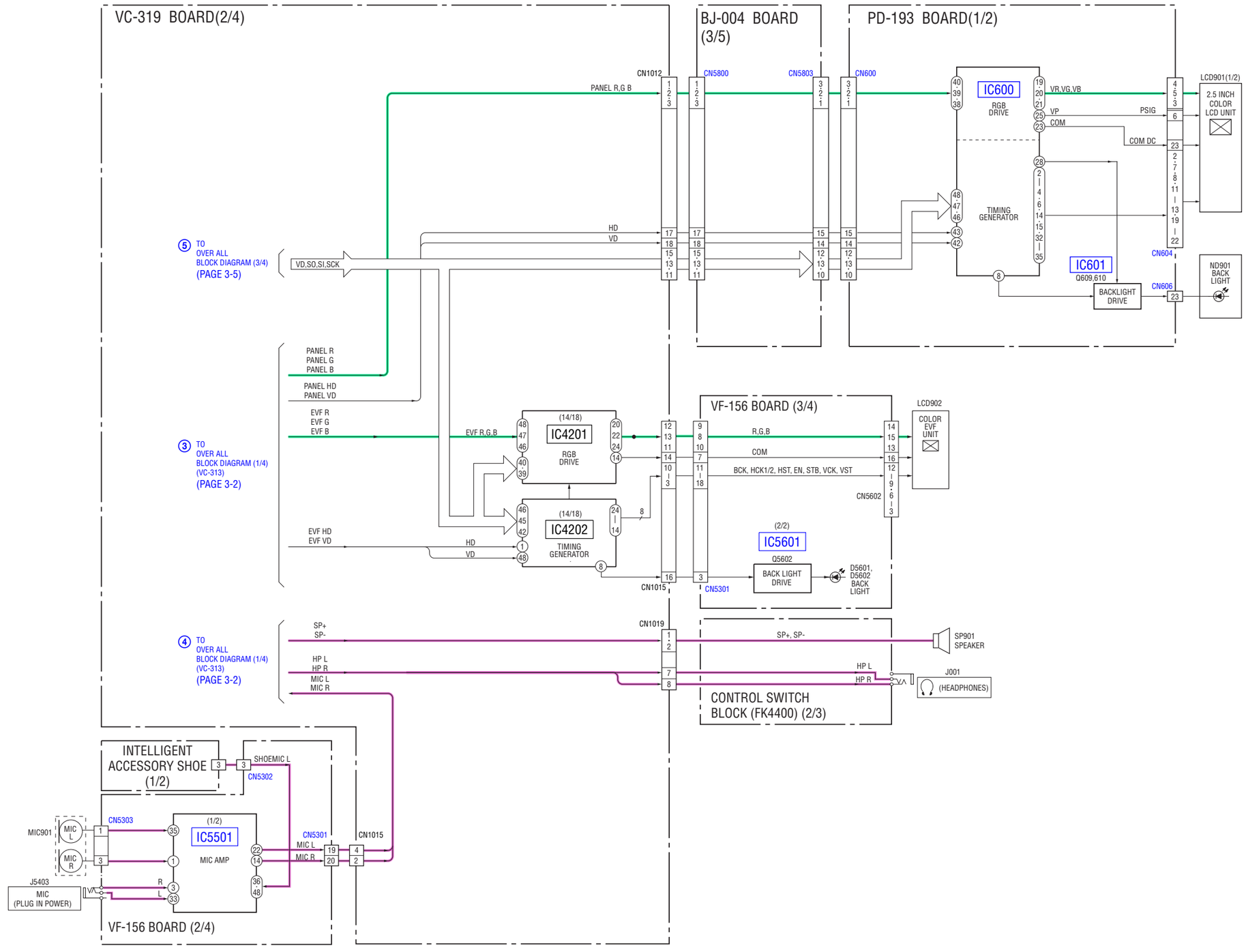
3-1. OVERALL BLOCK DIAGRAM (1/4)

( ) : Number in parenthesis ( ) indicates the division number of schematic diagram where the component is located.



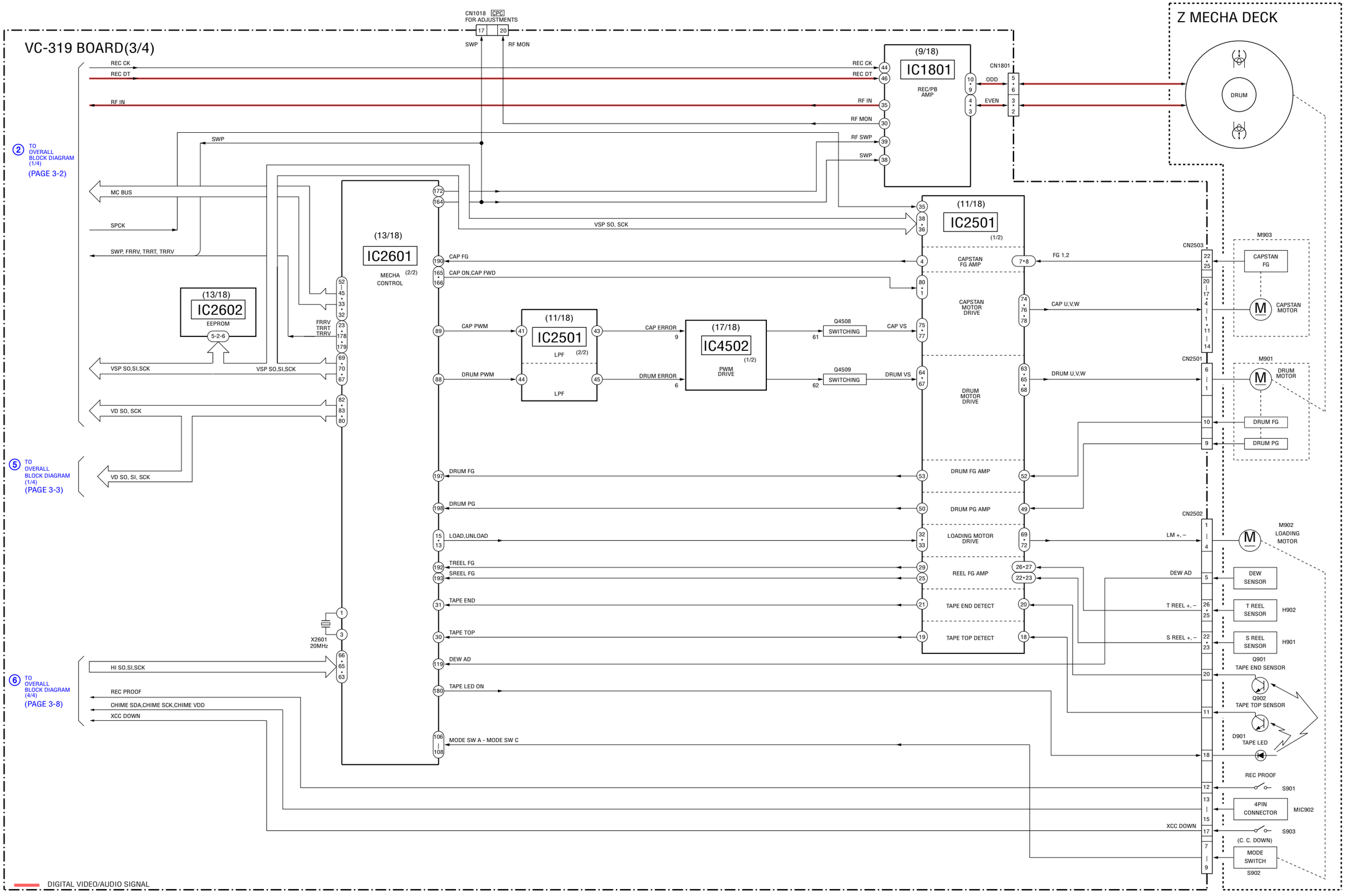
3-2. OVERALL BLOCK DIAGRAM (2/4)

( ) : Number in parenthesis ( ) indicates the division number of schematic diagram where the component is located.



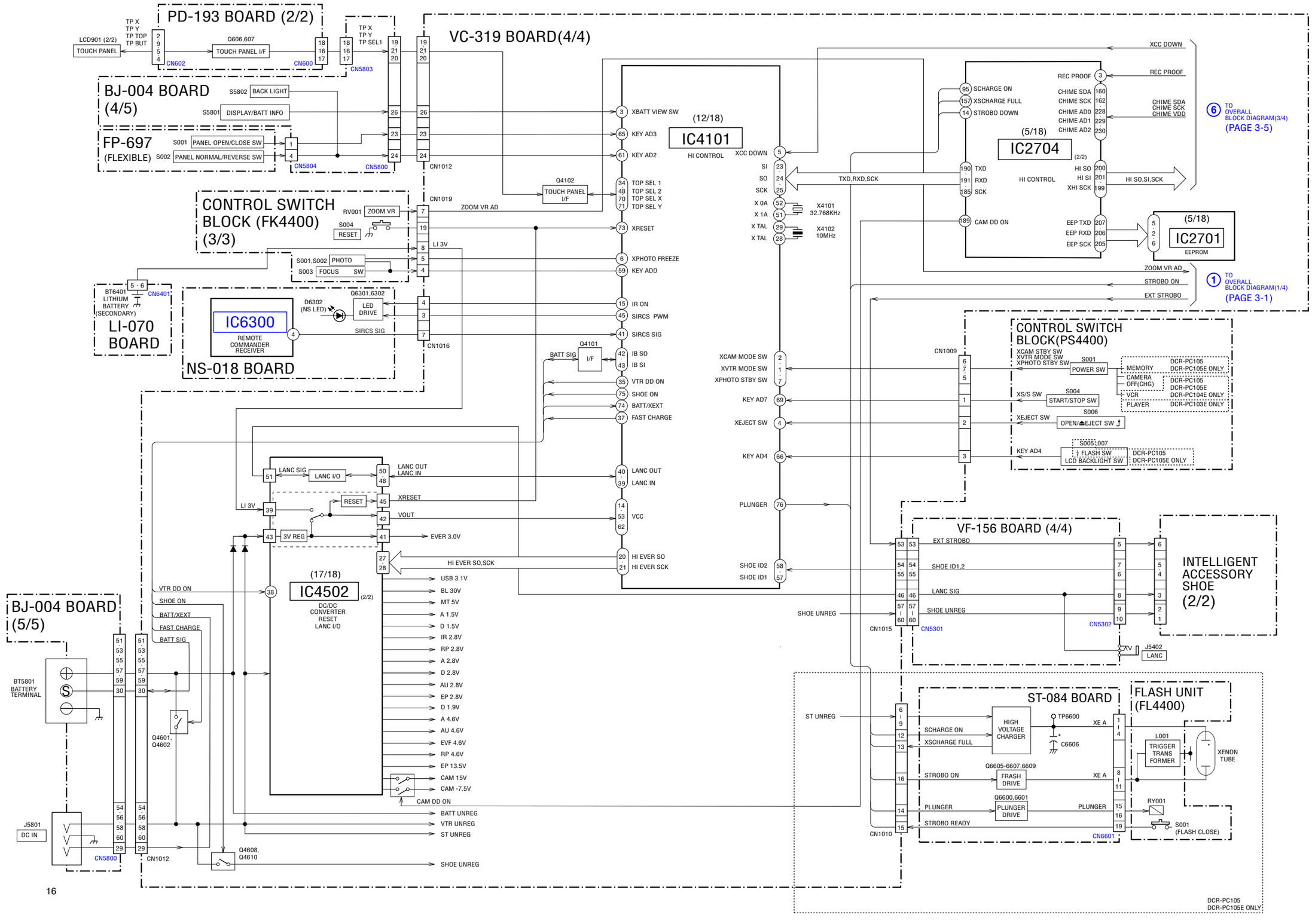
3-3. OVERALL BLOCK DIAGRAM (3/4)

( ) : Number in parenthesis ( ) indicates the division number of schematic diagram where the component is located.



3-4. OVERALL BLOCK DIAGRAM (4/4)

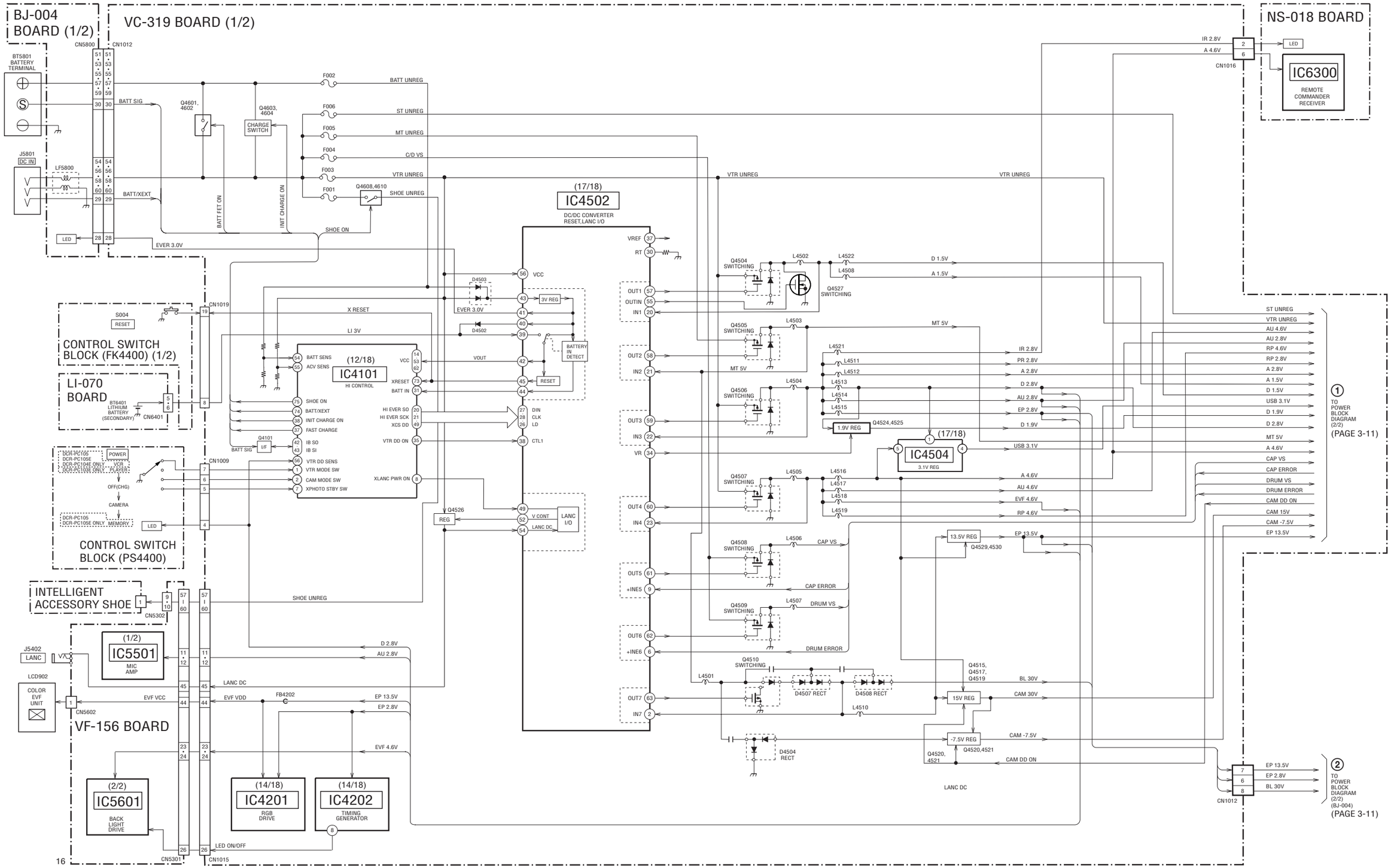
( ) : Number in parenthesis ( ) indicates the division number of schematic diagram where the component is located.



COVER

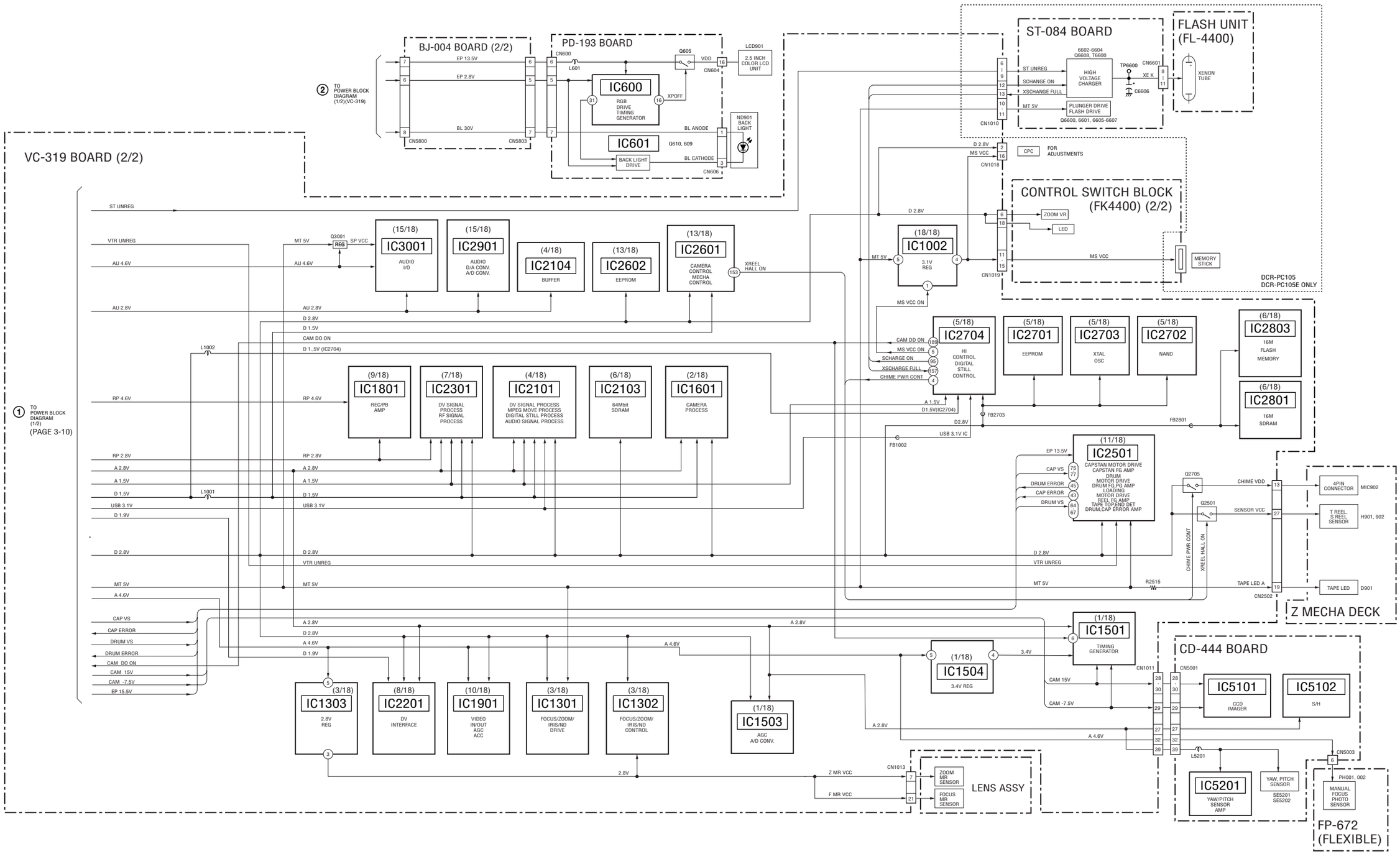
3-5. POWER BLOCK DIAGRAM (1/2)

( ) : Number in parenthesis ( ) indicates the division number of schematic diagram where the component is located.



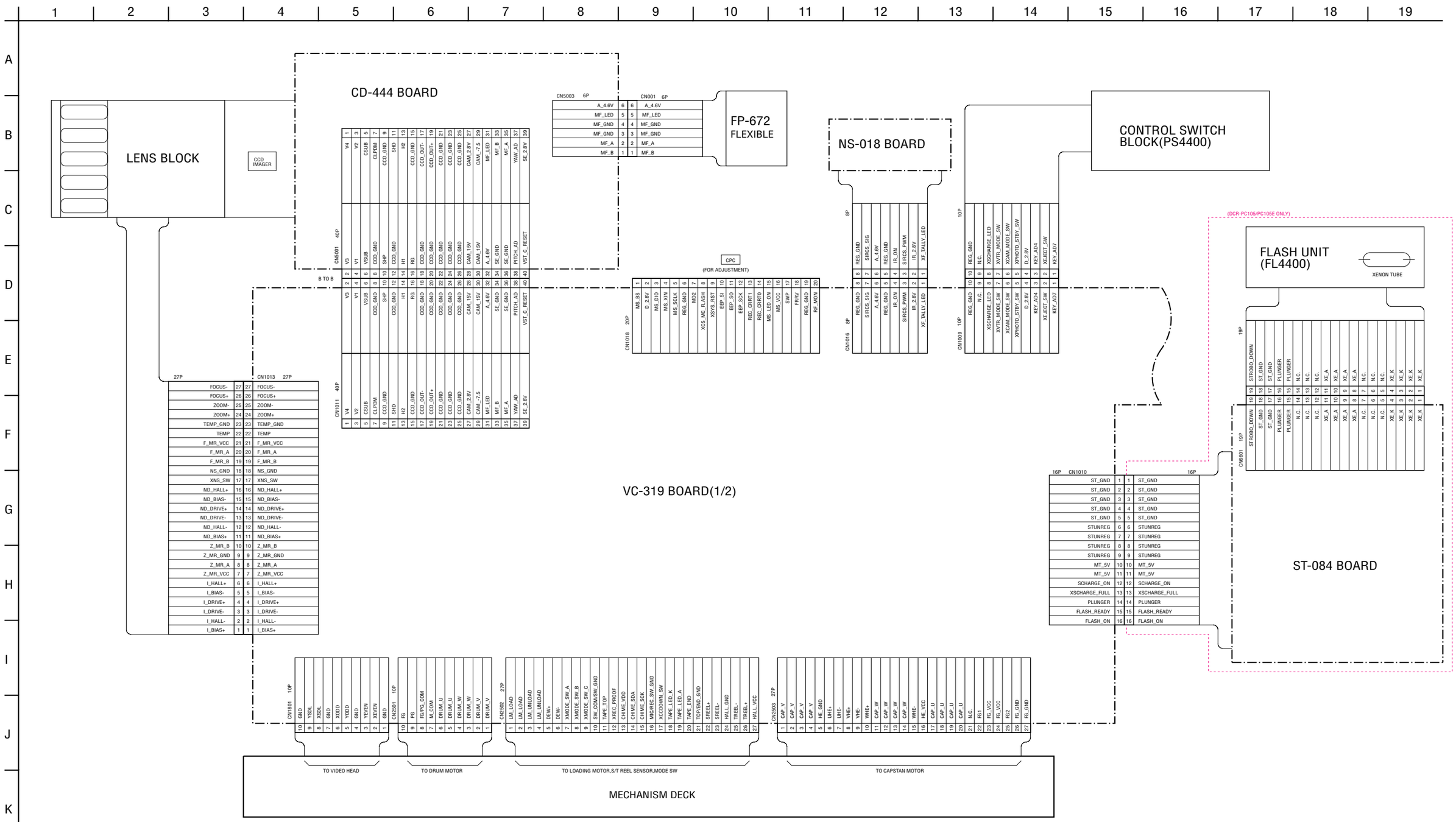
3-6. POWER BLOCK DIAGRAM (2/2)

( ) : Number in parenthesis ( ) indicates the division number of schematic diagram where the component is located.

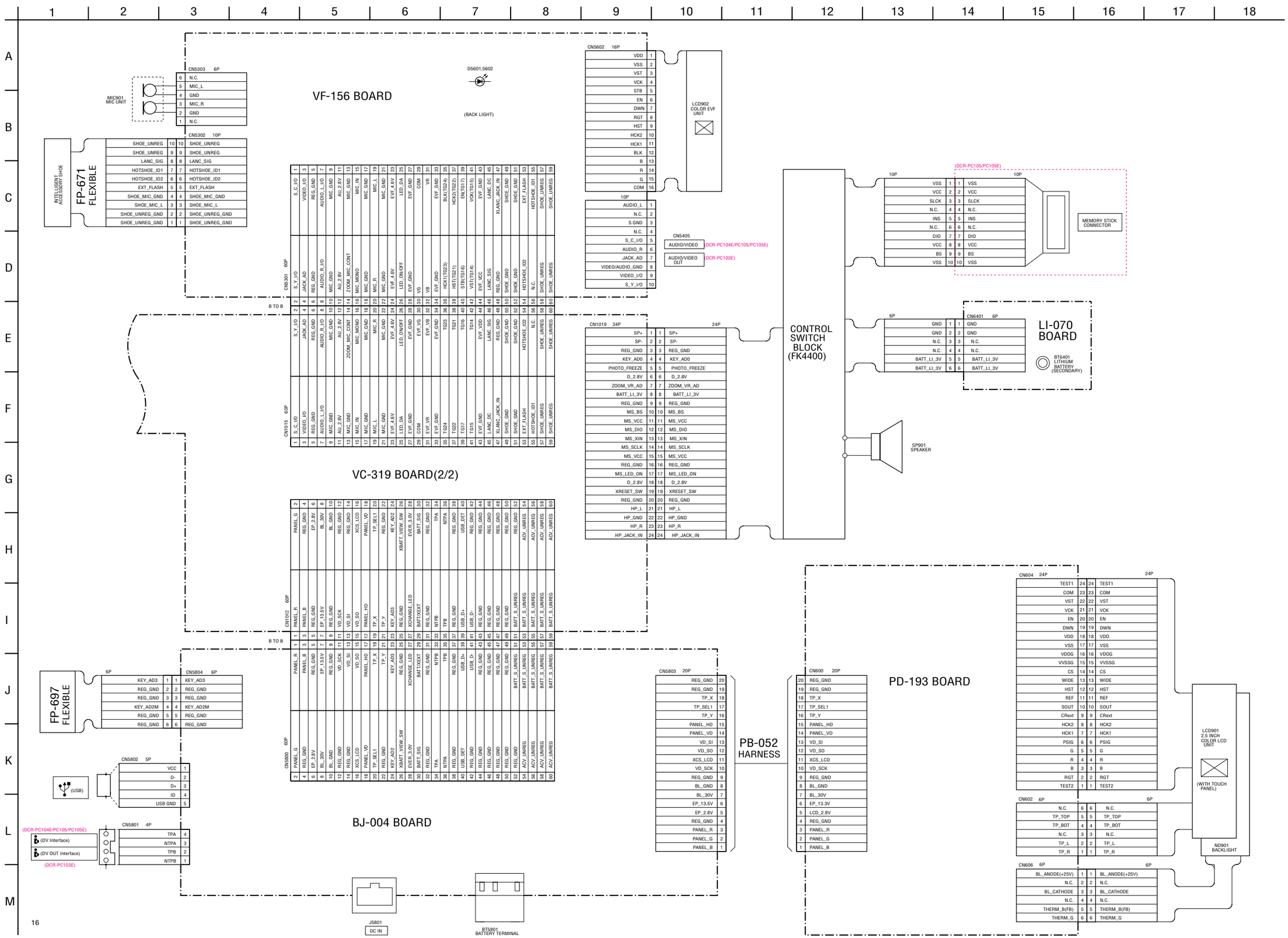


SECTION 4
PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

4-1. FRAME SCHEMATIC DIAGRAM (1/2)



FRAME SCHEMATIC DIAGRAM (2/2)



COVER

4-2. SCHEMATIC DIAGRAMS

Link

CD-444 BOARD (CCD IMAGER)	ST-084 BOARD (FLASH DRIVER)
FP-672 FLEXIBLE BOARD (MF SENSOR)	FLASH UNIT (FL4400)
PD-193 BOARD (LCD RGB DRIVE)	VF-156 BOARD (1/2) (MIC AMP)
CONTROL SWITCH BLOCK (FK4400) (MS,AUDIO OUT)	VF-156 BOARD (2/2) (JACK)
LI-070 BOARD (BATTERY)	NS-018 BOARD (SIRCS,NS)
BJ-004 BOARD (JACK)	CONTROL SWITCH BLOCK (PS4400) (FUNCTION KEY)
FP-697 FLEXIBLE BOARD	FP-467/468/228 FLEXIBLE (MD BLOCK)

COMMON NOTE FOR SCHEMATIC DIAGRAMS	WAVEFORMS

COVER

4-2. SCHEMATIC DIAGRAMS

THIS NOTE IS COMMON FOR SCHEMATIC DIAGRAMS
(In addition to this, the necessary note is printed in each block)

(For schematic diagrams)

- All capacitors are in μF unless otherwise noted. pF : μμF. 50 V or less are not indicated except for electrolytics and tantalums.
- Chip resistors are 1/10 W unless otherwise noted. kΩ=1000 Ω, MΩ=1000 kΩ.
- Caution when replacing chip parts.
  New parts must be attached after removal of chip.
  Be careful not to heat the minus side of tantalum capacitor, Because it is damaged by the heat.
- Some chip part will be indicated as follows.

Example

C541	L452
22U	10UH
TA A	2520

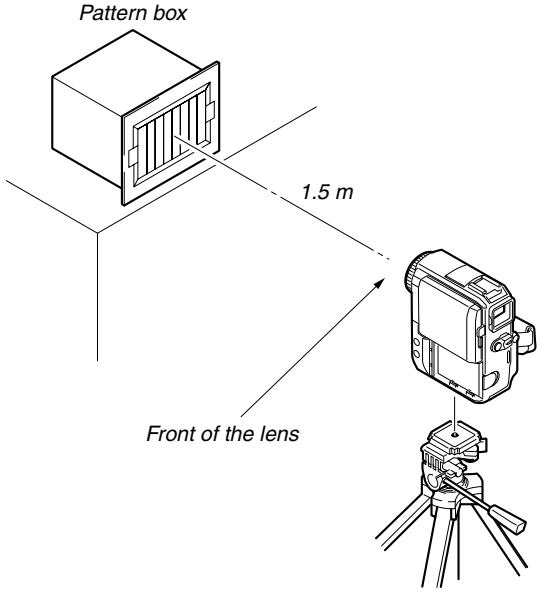
Kinds of capacitor
Temperature characteristics
External dimensions (mm)

- Constants of resistors, capacitors, ICs and etc with XX indicate that they are not used.
  In such cases, the unused circuits may be indicated.
- Parts with * differ according to the model/destination.
  Refer to the mount table for each function.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- Signal name
  XEDIT → $\overline{\text{EDIT}}$ PB/XREC → PB/$\overline{\text{REC}}$
- : non flammable resistor
- : fusible resistor
- : panel designation
- : B+ Line
- : B– Line
- : IN/OUT direction of (+,–) B LINE.
- : adjustment for repair.
- : VIDEO SIGNAL (ANALOG)
- : AUDIO SIGNAL (ANALOG)
- : VIDEO/AUDIO SIGNAL
- : VIDEO/AUDIO/SERVO SIGNAL
- : SERVO SIGNAL
- Circled numbers refer to waveforms.

(Measuring conditions voltage and waveform)

- Voltages and waveforms are measured between the measurement points and ground when camera shoots color bar chart of pattern box. They are reference values and reference waveforms.
  (VOM of DC 10 MΩ input impedance is used)
- Voltage values change depending upon input impedance of VOM used.)

1. Connection



2. Adjust the distance so that the output waveform of Fig. a and the Fig. b can be obtain.

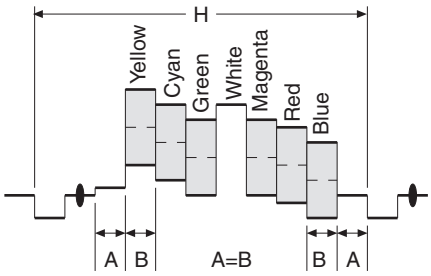


Fig. a (Video output terminal output waveform)

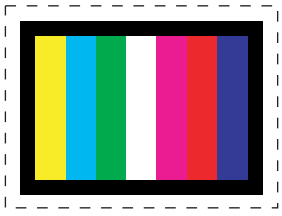


Fig.b (Picture on monitor TV)

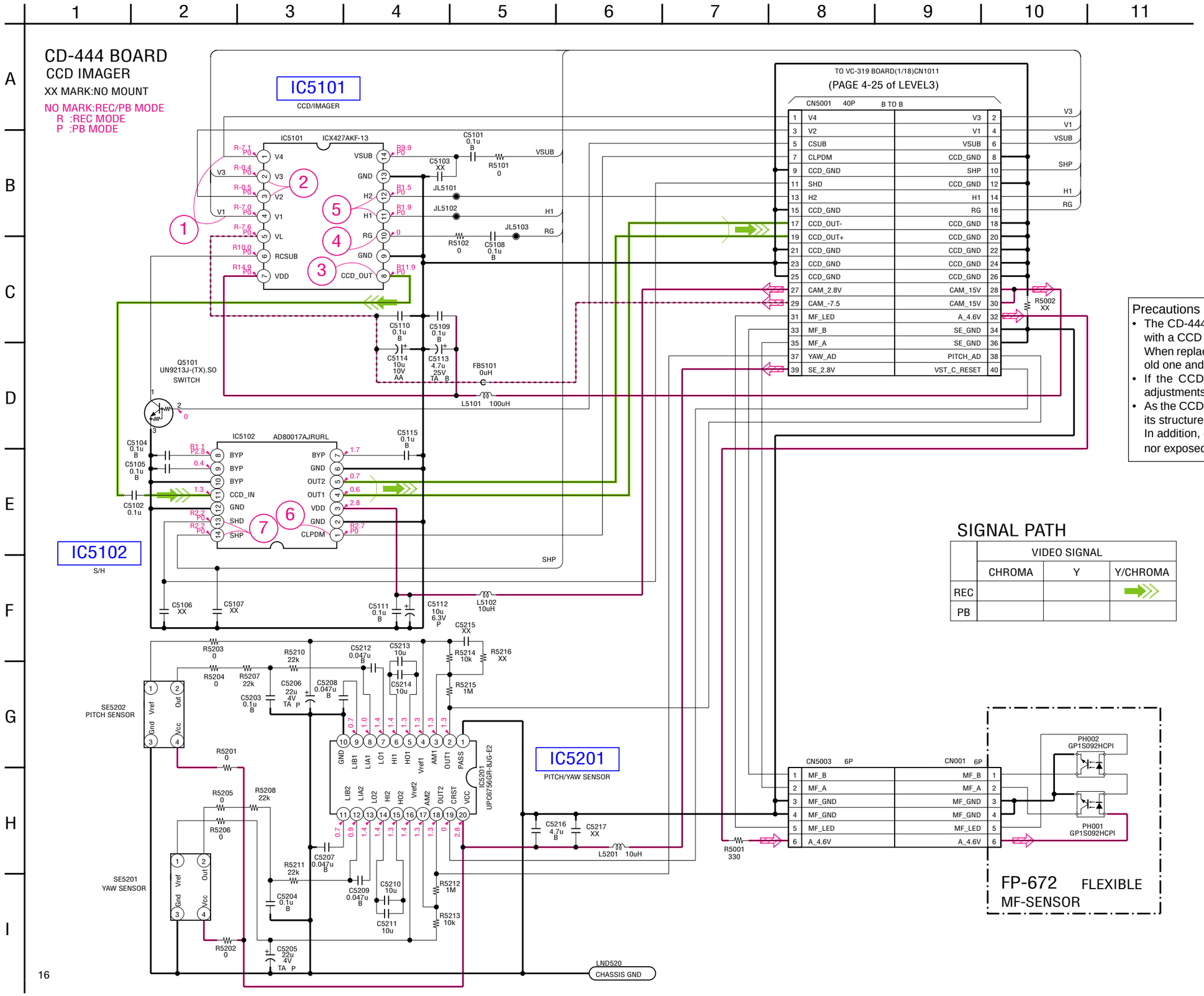
When indicating parts by reference number, please include the board name.

Note : The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	**Note :** Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

4-2. SCHEMATIC DIAGRAMS

For Schematic Diagram

• Refer to page 4-63 for printed wiring board of CD-444 board.
• Refer to page 4-65 for printed wiring board of FP-672 board.



SIGNAL PATH

	VIDEO SIGNAL		
	CHROMA	Y	Y/CHROMA
REC			⇒
PB			

Precautions Upon Replaching CCD imager

- The CD-444 board mounted as a repair part is not equipped with a CCD imager.
  When replaching this board, remove the CCD imager from the old one and mount it onto the new one.
- If the CCD imager has been replaced, carry out all the adjustments for the camera section.
- As the CCD imager may be damaged by static electrictiy from its structure, handle it carefully like for the MOS IC.
  In addition, ensure that the receiver is not covered with dusts nor exposed to strong light.

For Schematic Diagram

• Refer to page 4-67 for printed wiring board.

PD-193 BOARD
LCD RGB DRIVER
XX MARK:NO MOUNT
NO MARK:REC/PB MODE

SIGNAL PATH

	VIDEO SIGNAL		
	CHROMA	Y	Y/CHROMA
REC	⇒		
PB	⇨		

IC600
LCD RGB DRIVE
IC600
CXA3622AR-T4

IC601
CURRENT DETCT
IC601
NJM2125F(TE2)

CN600 20P
PANEL_B 1
PANEL_G 2
PANEL_R 3
REG_GND 4
LCD_2.8V 5
EP_13.5V 6
BL_30V 7
BL_GND 8
REG_GND 9
VD_SCK 10
XCS_LCD 11
VD_SO 12
VD_SI 13
PANEL_VD 14
PANEL_HD 15
TP_Y 16
TP_SEL1 17
TP_X 18
REG_GND 19
REG_GND 20

TO BJ-004 BOARD CN5803 (THROUGH THE PB-052 HARNESS) (PAGE 4-14)

CN602 6P
N.C. 6
TP_TOP 5
TP_BOT 4
N.C. 3
TP_L 2
TP_R 1

TOUCH PANEL (Supplied with LCD)

CN605 XX
6 PSIG
5 EXT_BL
4 HD0
3 GND
2 COM
1 VG

CN604 24P
24 TEST1
23 COM
22 VST
21 VCK
20 EN
19 DWN
18 VDD
17 VSS
16 VDOG
15 VVSSG
14 CS
13 WIDE
12 HST
11 REF
10 SOUT
9 CRext
8 HCK2
7 HCK1
6 PSIG
5 G
4 R
3 B
2 RGT
1 TEST2

LCD901
2.5 INCH
COLOR LCD UNIT
(With TOUCH PANEL)

CN606 6P
1 BL_ANODE(+25V)
2 N.C.
3 BL_CATHODE
4 N.C.
5 THERM_B(FB)
6 THERM_G

ND901
BACK LIGHT
(THERMOMETER)

Q605 NDS356AP B+ SWITCH
Q604 UP04601008S0 SWITCH
Q603 UP04601008S0 SWITCH
Q606 XP4111-TXE
Q607 XP4211-TXE
Q606,607 TOUCH PANEL DRIVE
Q608 XX
Q609 MCH6202-TL LED DRIVE
Q610 2SB1462J-QR(K8).SO SWITCH
Q611 2SC4738F-Y/GR(TPL3) RESET

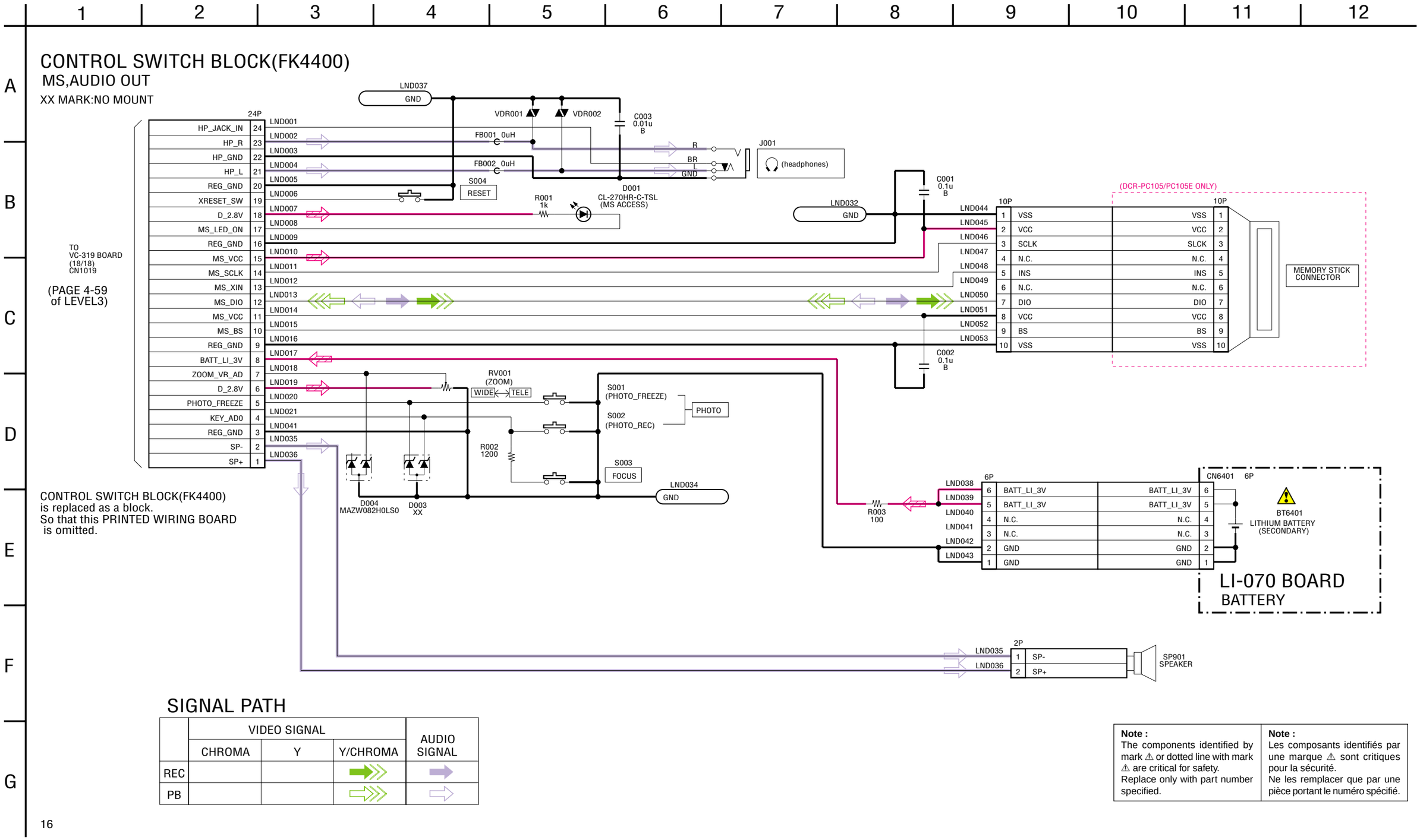
D604 RD3.3UM-T1B
D605 MA111-(K8).S0

TH001 XX

LND601
CHASSIS GND

For Schematic Diagram

• Refer to page 4-65 for printed wiring board of LI-070 board.



SIGNAL PATH

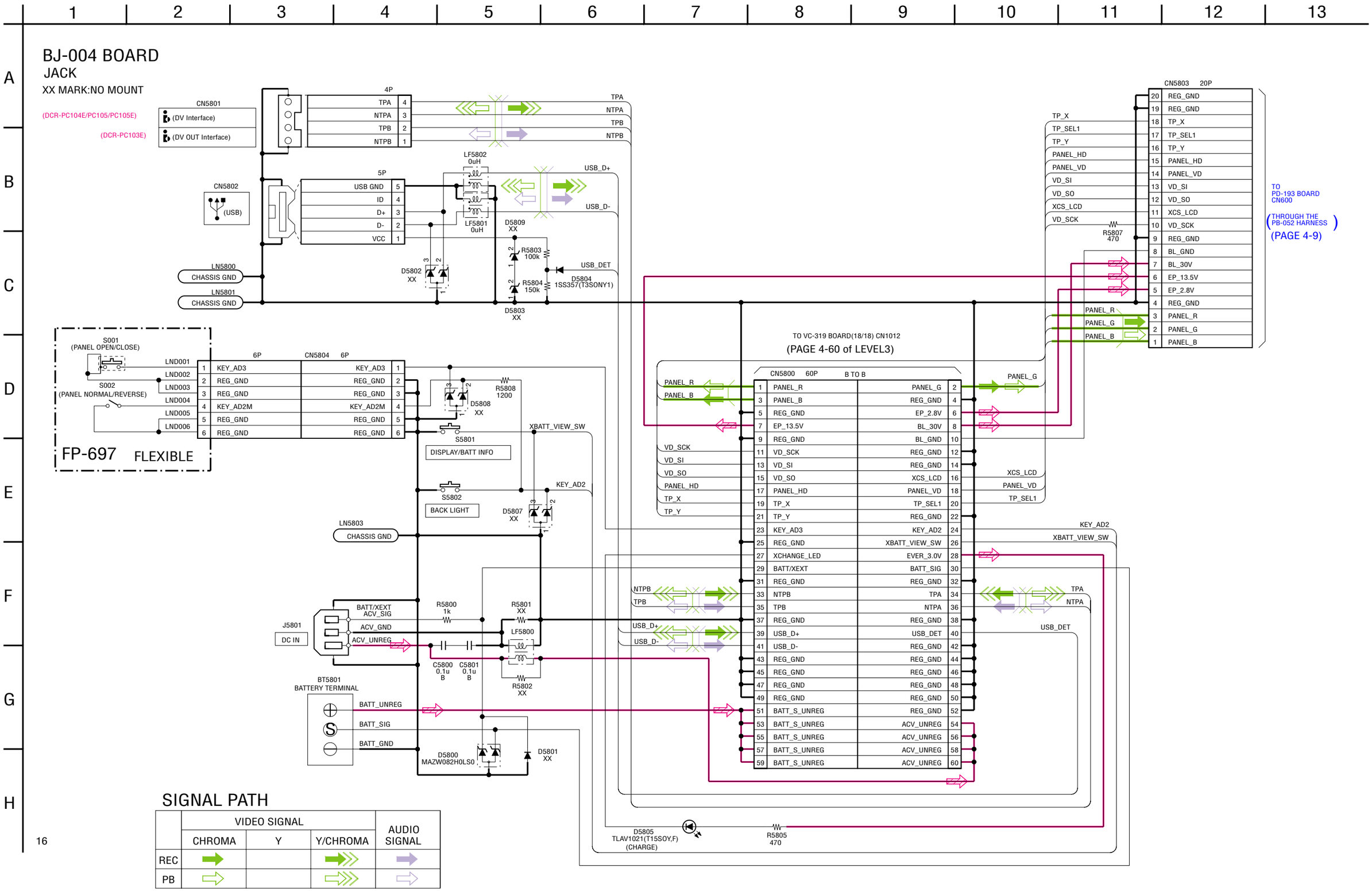
	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
REC			⇒	⇒
PB			⇨	⇨

Note :
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Note :
Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

For Schematic Diagram

• Refer to page 4-66 for printed wiring board of FP-697.
• Refer to page 4-69 for printed wiring board of BJ-004.



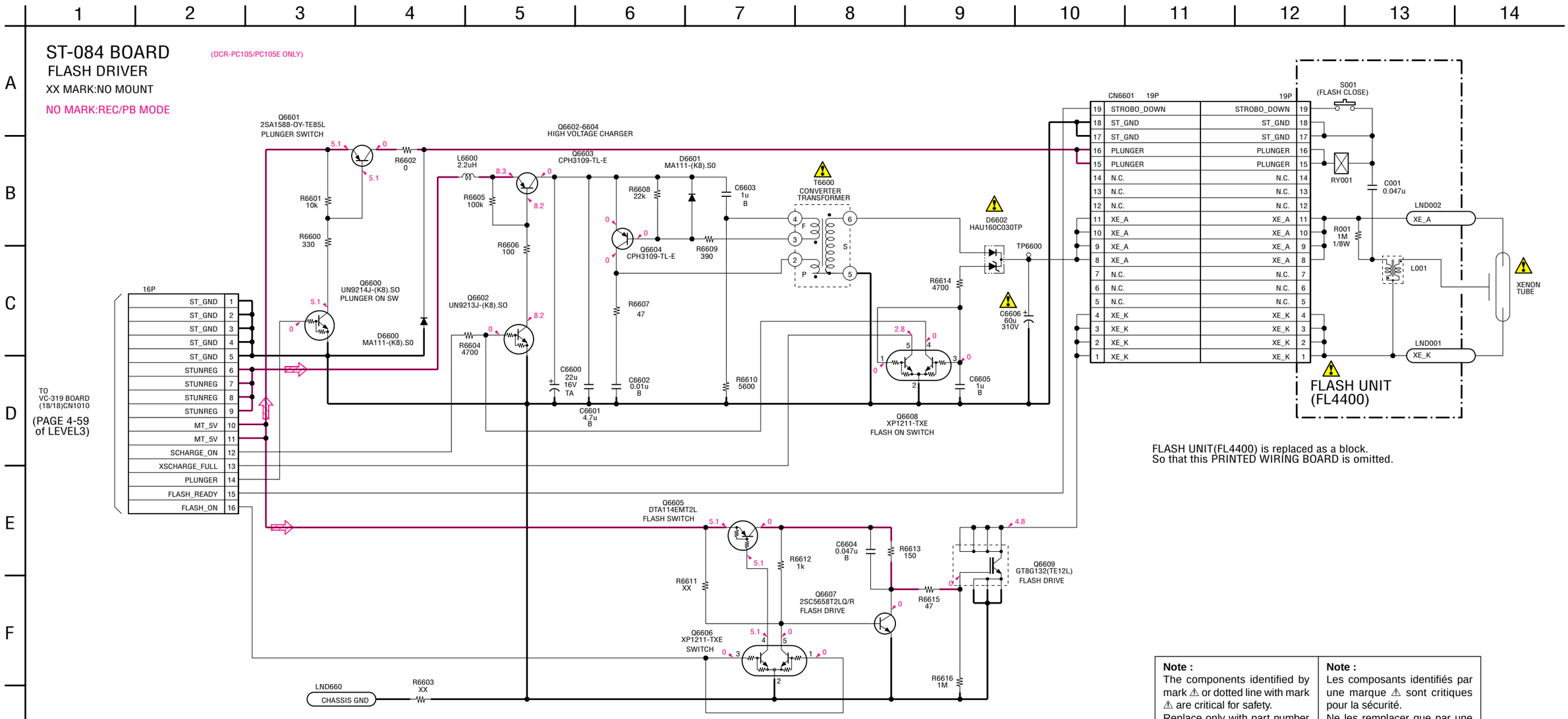
SIGNAL PATH

	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
REC	➡		➡	➡
PB	⇨		⇨	⇨

COVER

For Schematic Diagram

• Refer to page 4-71 for printed wiring board of ST-084.

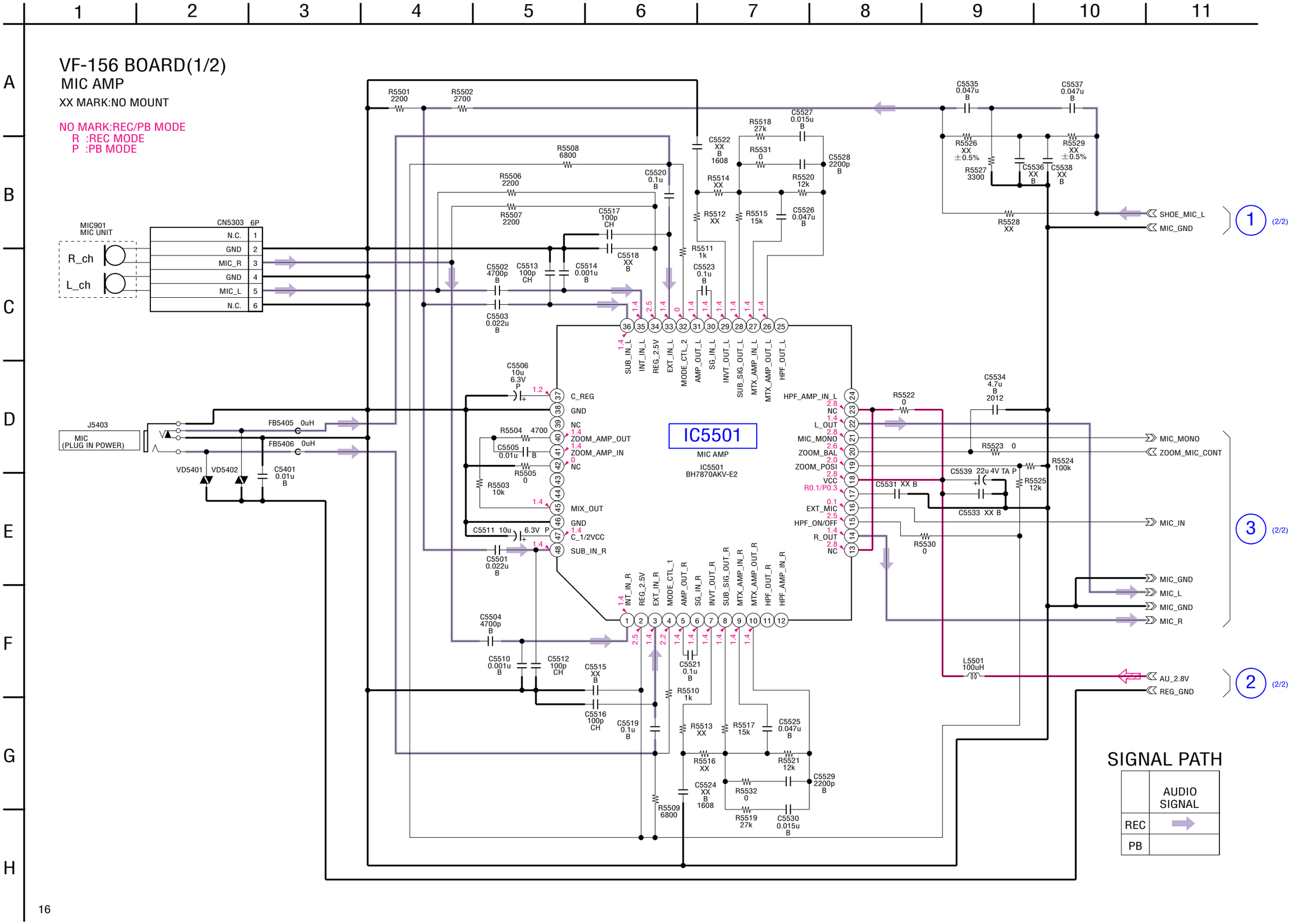


FLASH UNIT(FL4400) is replaced as a block.
So that this PRINTED WIRING BOARD is omitted.

Note :	**Note :**
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

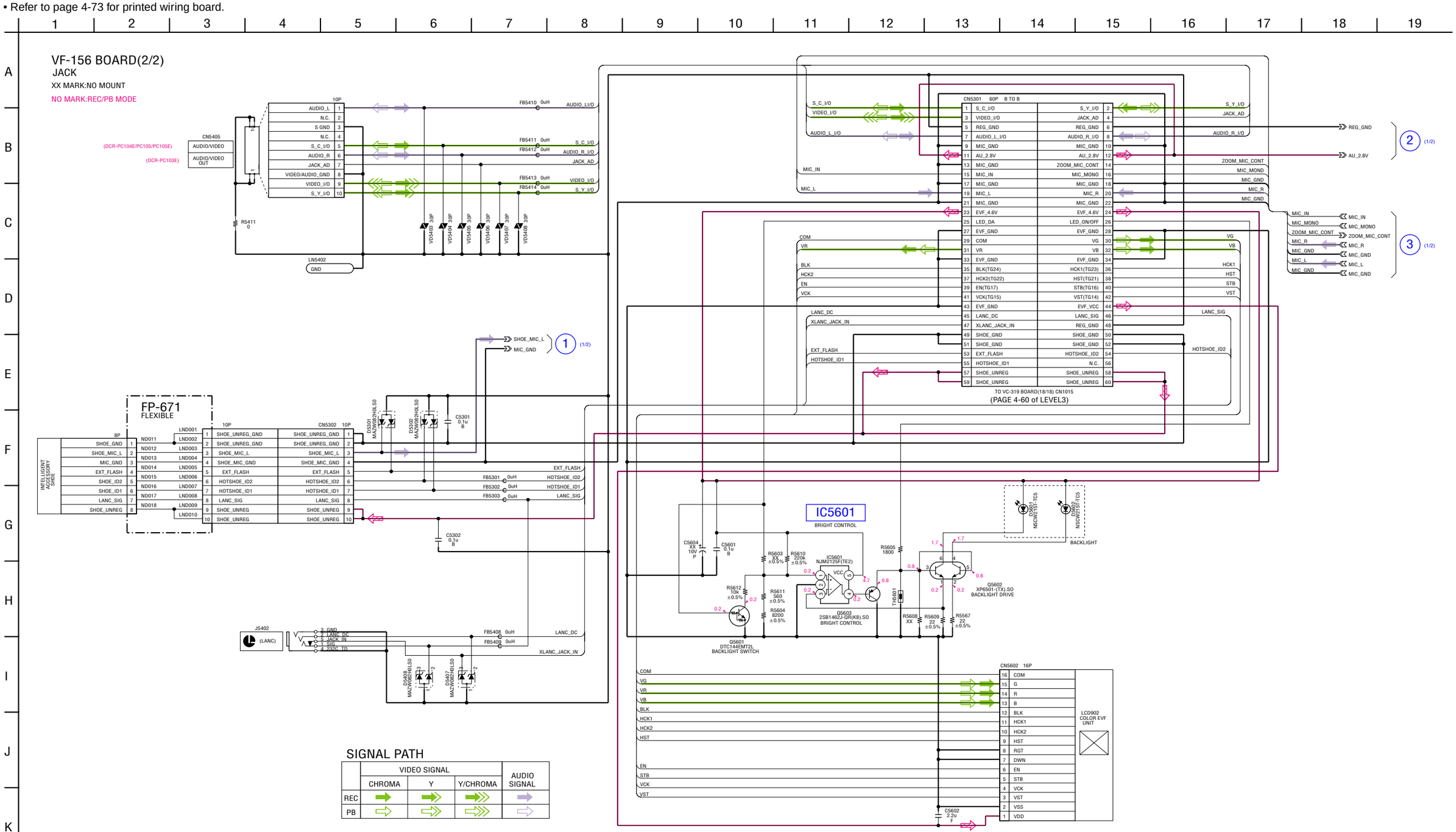
For Schematic Diagram

• Refer to page 4-73 for printed wiring board.



For Schematic Diagram

• Refer to page 4-73 for printed wiring board.

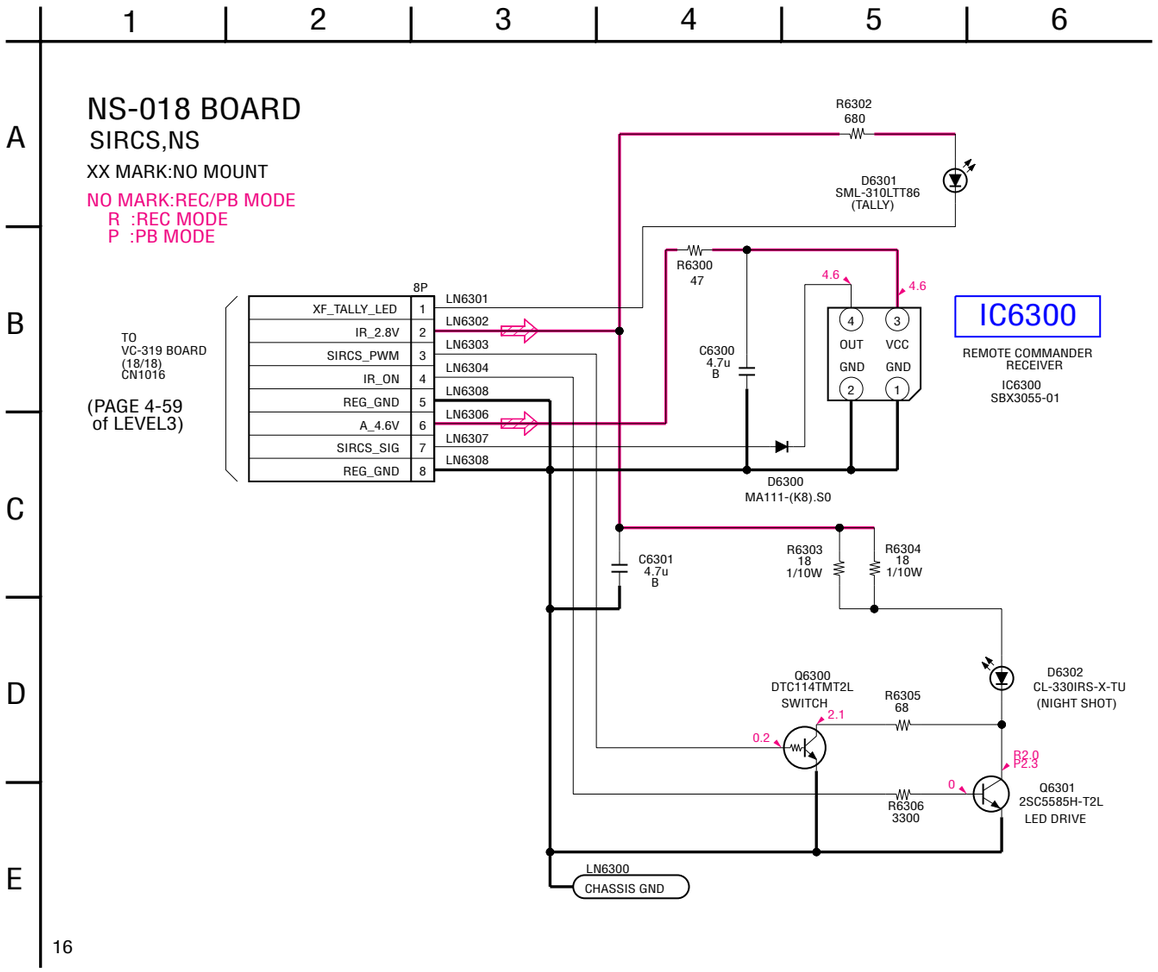


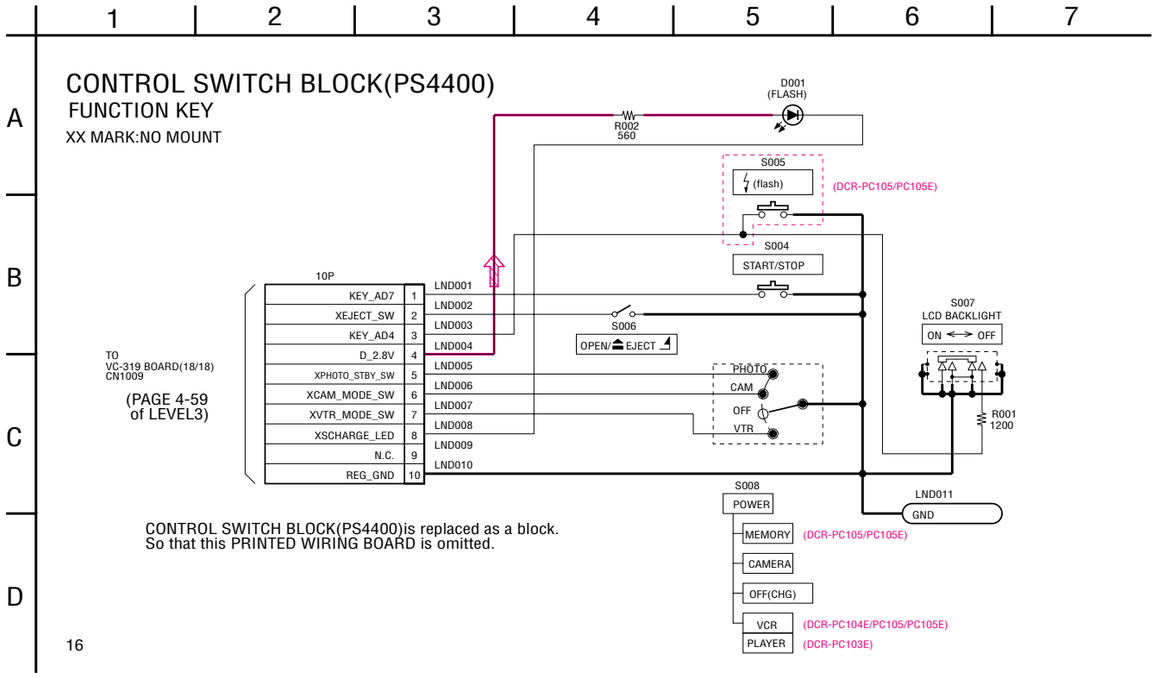
SIGNAL PATH

	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
REC	⇒	⇒	⇒	⇒
PB	⇨	⇨	⇨	⇨

For Schematic Diagram

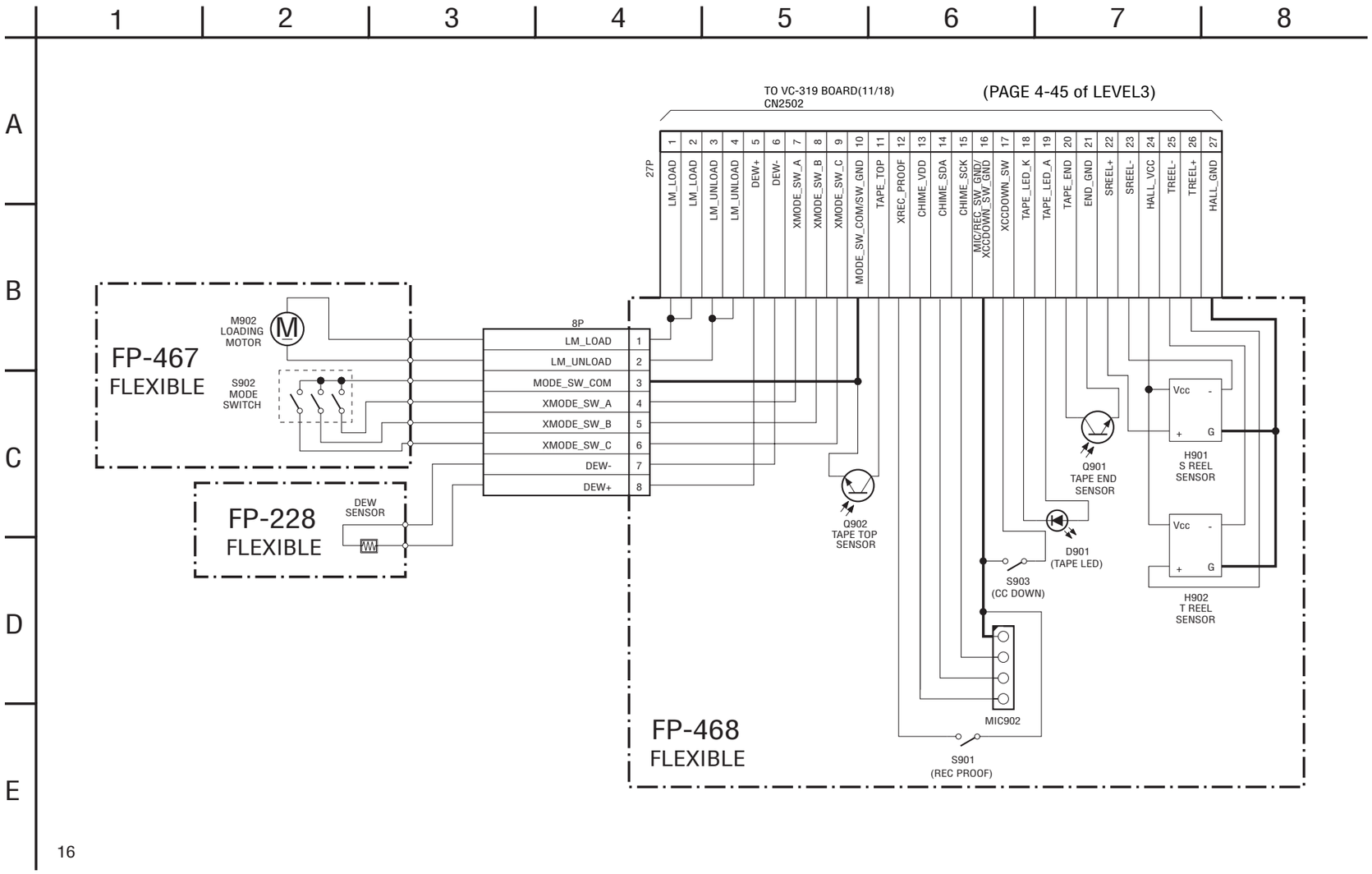
• Refer to page 4-66 for printed wiring board of NS-018.





For Schematic Diagram

• Refer to page 4-81 for printed wiring board.



Schematic diagram of the VC-319 board are not shown.
Pages from 4-25 to 4-60 are not shown.

COVER

4-3. PRINTED WIRING BOARDS

Link

CD-444 BOARD	BJ-004 BOARD
FP-672 FLEXIBLE BOARD	ST-084 BOARD
FP-697 FLEXIBLE BOARD	VF-156 BOARD (SIDE A)
LI-070 BOARD	VF-156 BOARD (SIDE B)
NS-018 BOARD	FP-467/468/228 FLEXIBLE BOARD
PD-193 BOARD	

COMMON NOTE FOR PRINTED WIRING BOARDS		WAVEFORMS
MOUNTED PARTS LOCATION	CIRCUIT BOARDS LOCATION	FLEXIBLE BOARDS LOCATION

COVER

4-3. PRINTED WIRING BOARDS

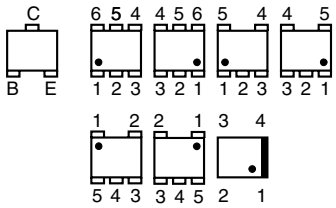
THIS NOTE IS COMMON FOR WIRING BOARDS
(In addition to this, the necessary note is printed in each block)

(For printed wiring boards)

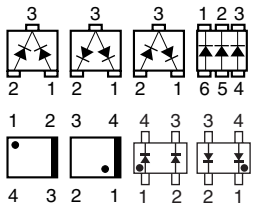
- : Uses unleaded solder.
- : Pattern from the side which enables seeing. (The other layers' patterns are not indicated)
- Through hole is omitted.
- Circled numbers refer to waveforms.
- There are a few cases that the part printed on diagram isn't mounted in this model.
- : panel designation

- Chip parts.

Transistor



Diode



BOARD INFORMATION

board name	parts location (shown on page)	waveform (shown on page)	pattern		CSP IC
			number of layers	layers not shown	
CD-444	4-87	4-83	4	2 to 3	–
FP-672 FLEXIBLE	–	–	1	–	–
FP-697 FLEXIBLE	–	–	1	–	–
LI-070	–	–	2	–	–
NS-018	–	–	4	2 to 3	–
PD-193	4-87	4-84	2	–	–
BJ-004	4-87	–	4	2 to 3	–
ST-084	4-87	–	4	2 to 3	–
VF-156	4-88	–	4	2 to 3	–
VC-319	4-88, 89	4-85,86	8	2 to 7	IC1301, 1601, 1901, 2101, 2103, 2201, 2301, 2501, 2601, 2704, 2802, 2803, 3001, 4101

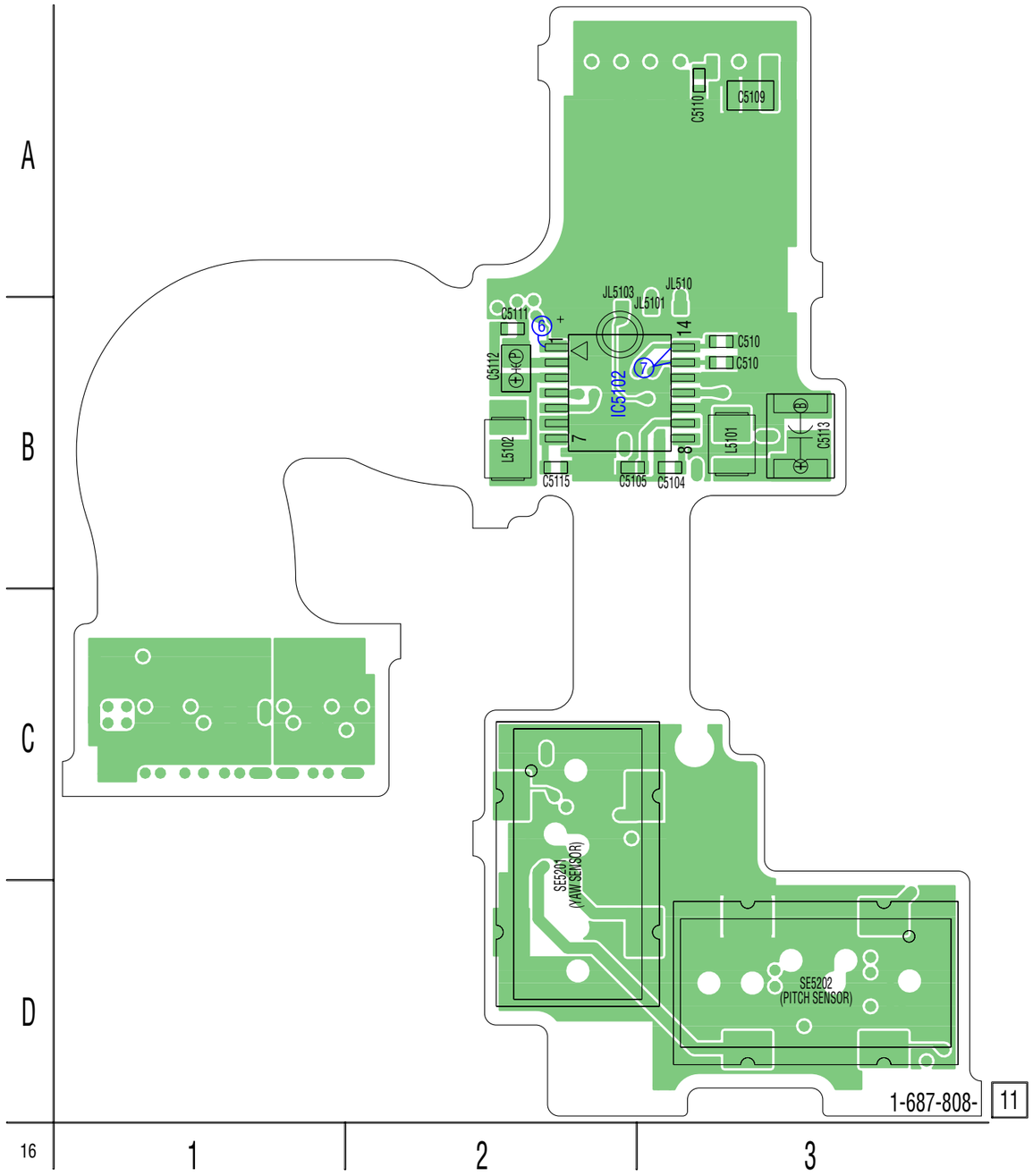
4-3. PRINTED WIRING BOARDS

CD-444 (CCD IMAGER) PRINTED WIRING BOARD

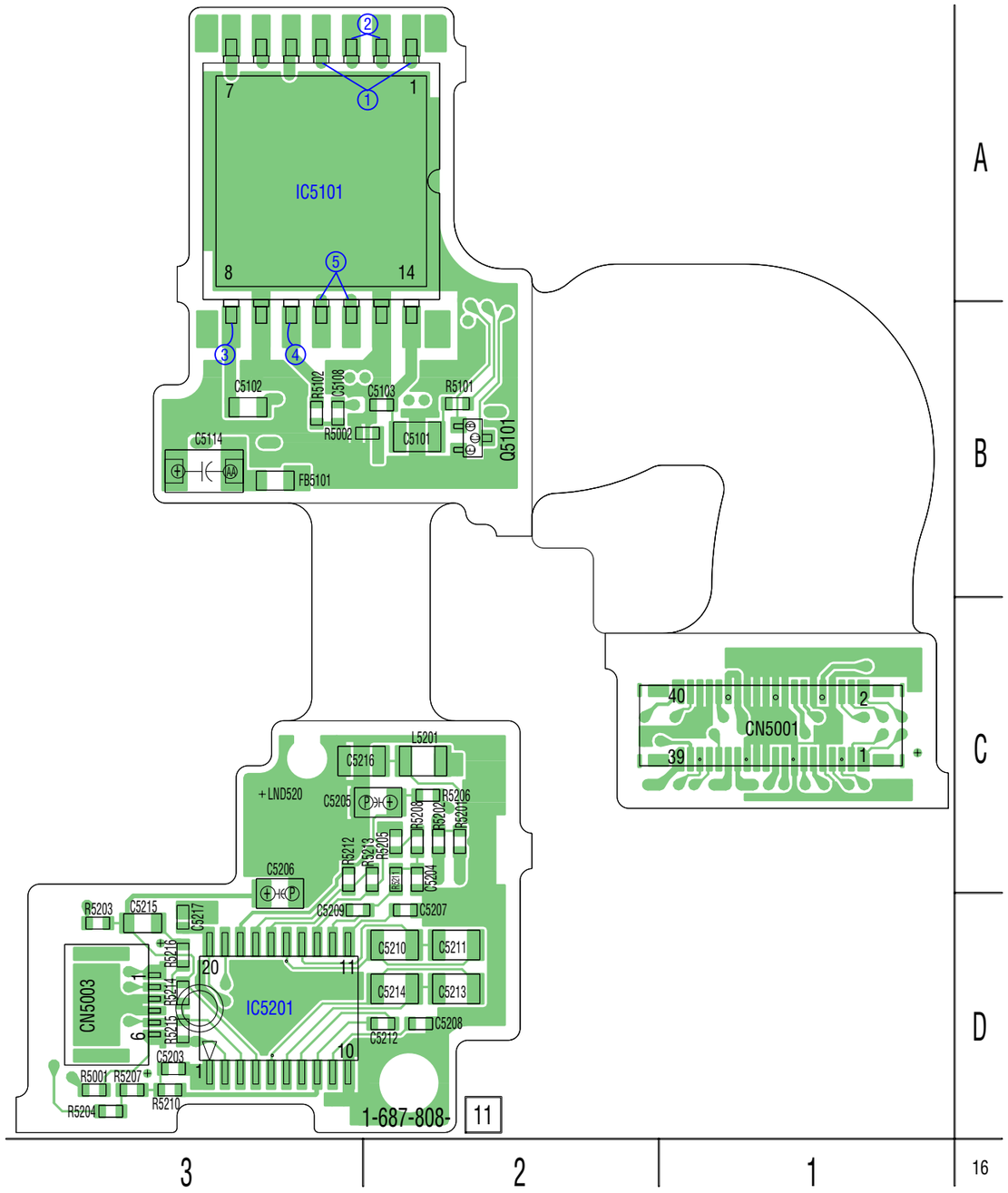
• Refer to page 4-61 for common note for printed wiring board.

• : Uses unleaded solder.

CD-444 BOARD(SIDE A)

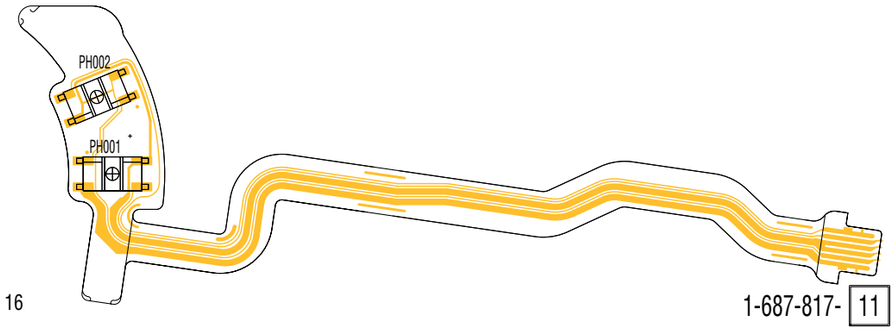


CD-444 BOARD(SIDE B)



FP-672 (MF SENSOR) FLEXIBLE BOARD

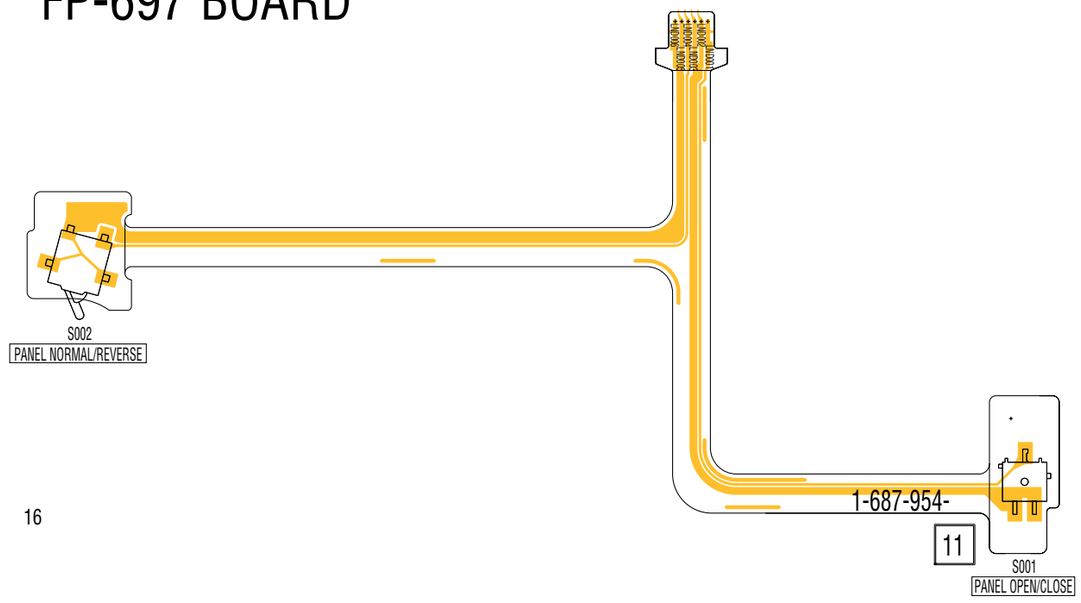
FP-672 BOARD



FP-697 FLEXIBLE BOARD

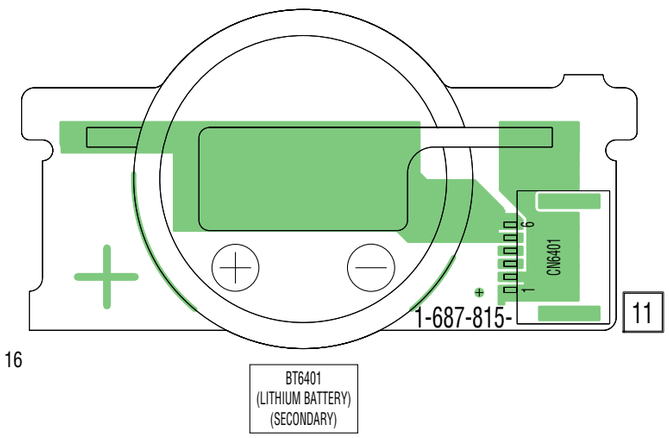
- Refer to page 4-61 for common note for printed wiring board.
- : Uses unleaded solder.

FP-697 BOARD



LI-070 (BATTERY) PRINTED WIRING BOARD

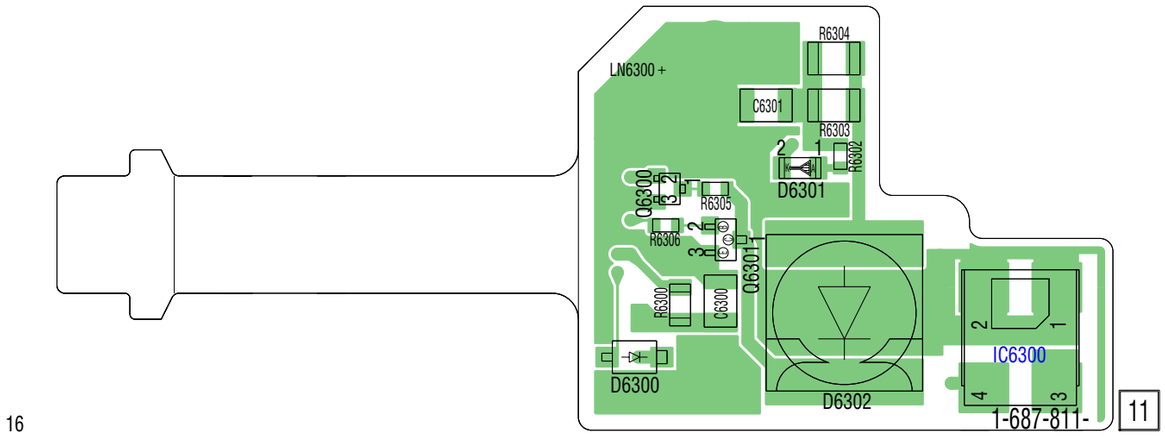
LI-070 BOARD



CAUTION :
Danger of explosion if battery is incorrectly replaced.
Replace only with the same or equivalent type.

NS-018 (SIRCS,NS) PRINTED WIRING BOARD

NS-018 BOARD

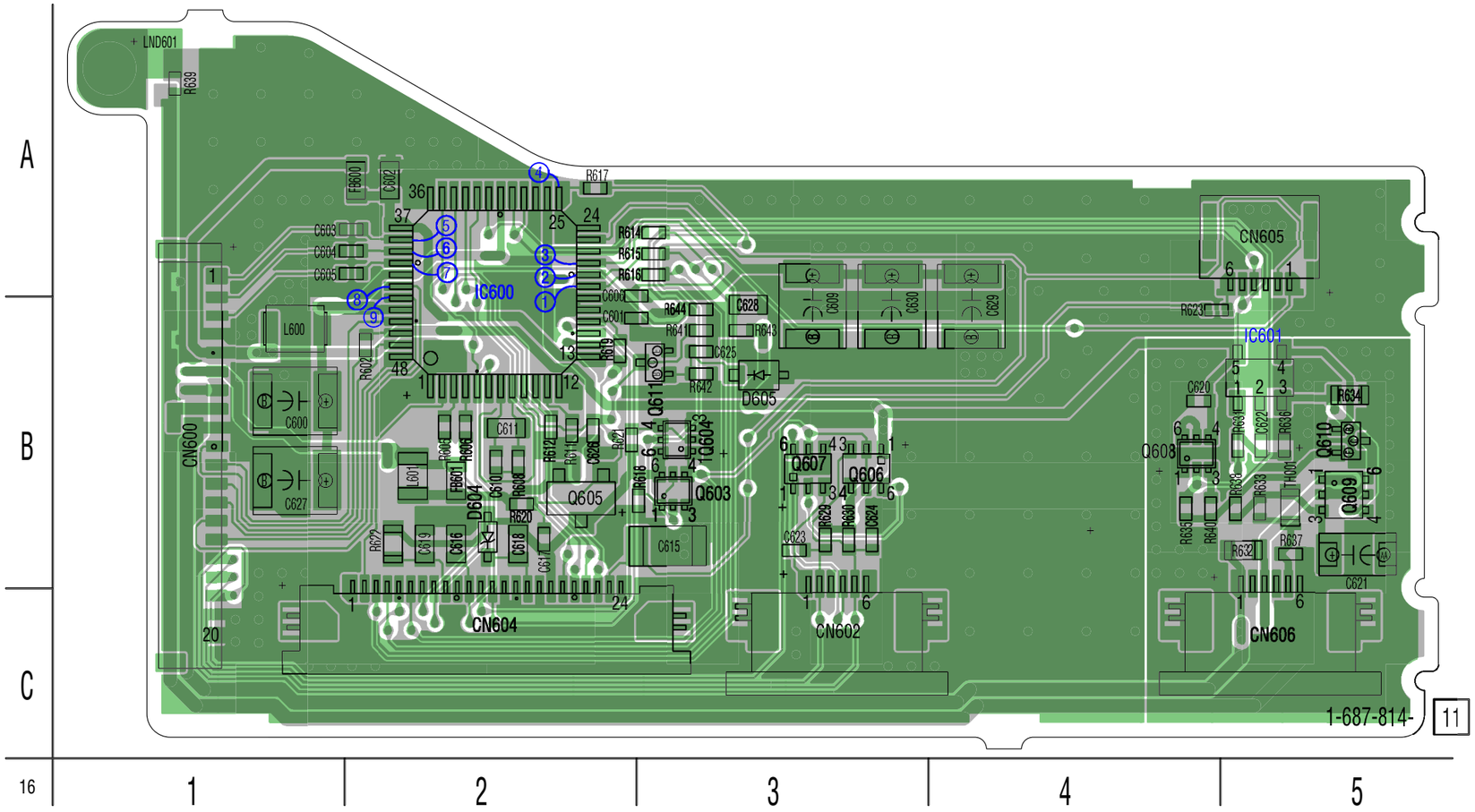


PD-193 (LCD RGB DRIVE) PRINTED WIRING BOARD

• Refer to page 4-61 for common note for printed wiring board.

• : Uses unleaded solder.

PD-193 BOARD

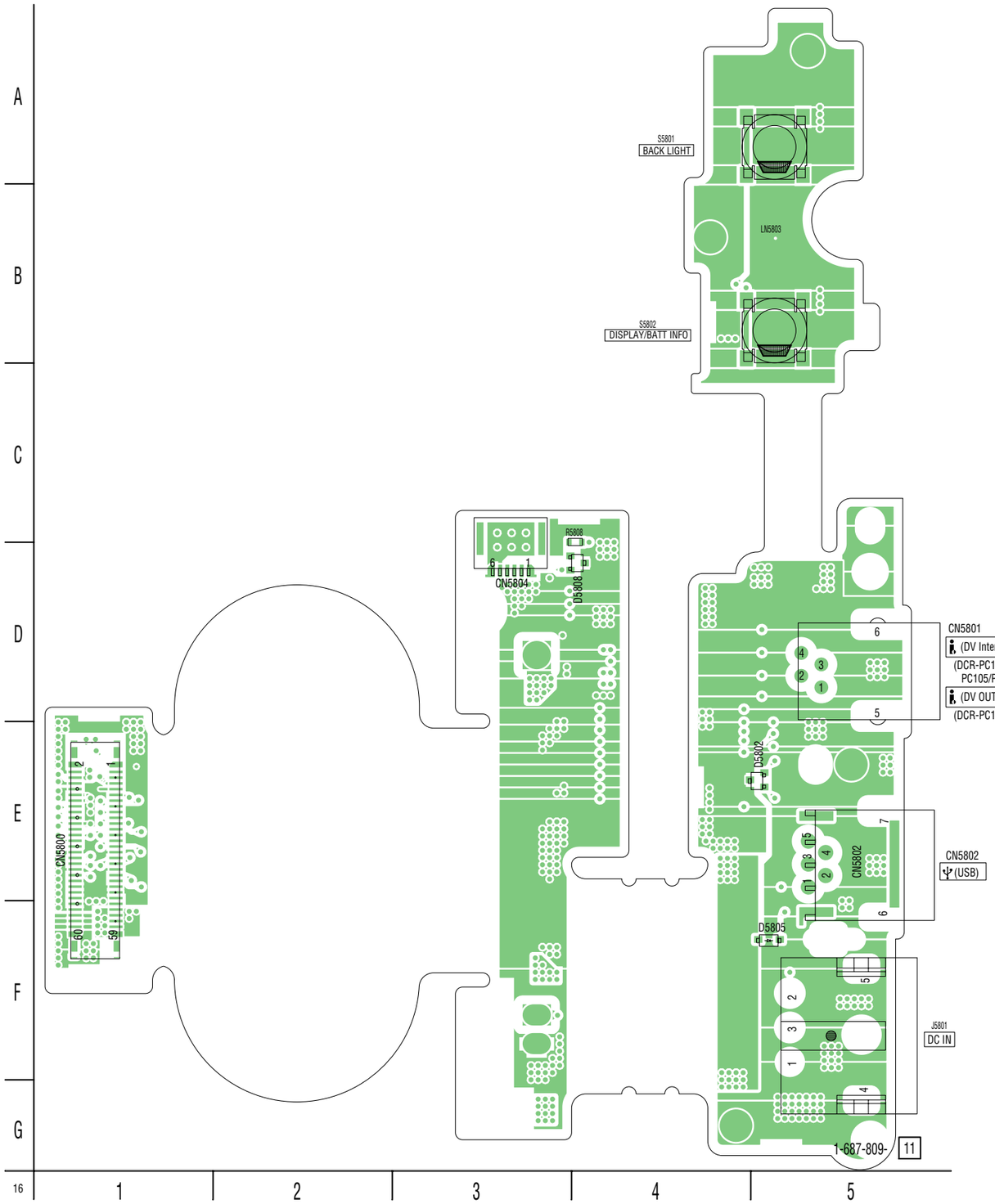


BJ-004 (JACK) PRINTED WIRING BOARD

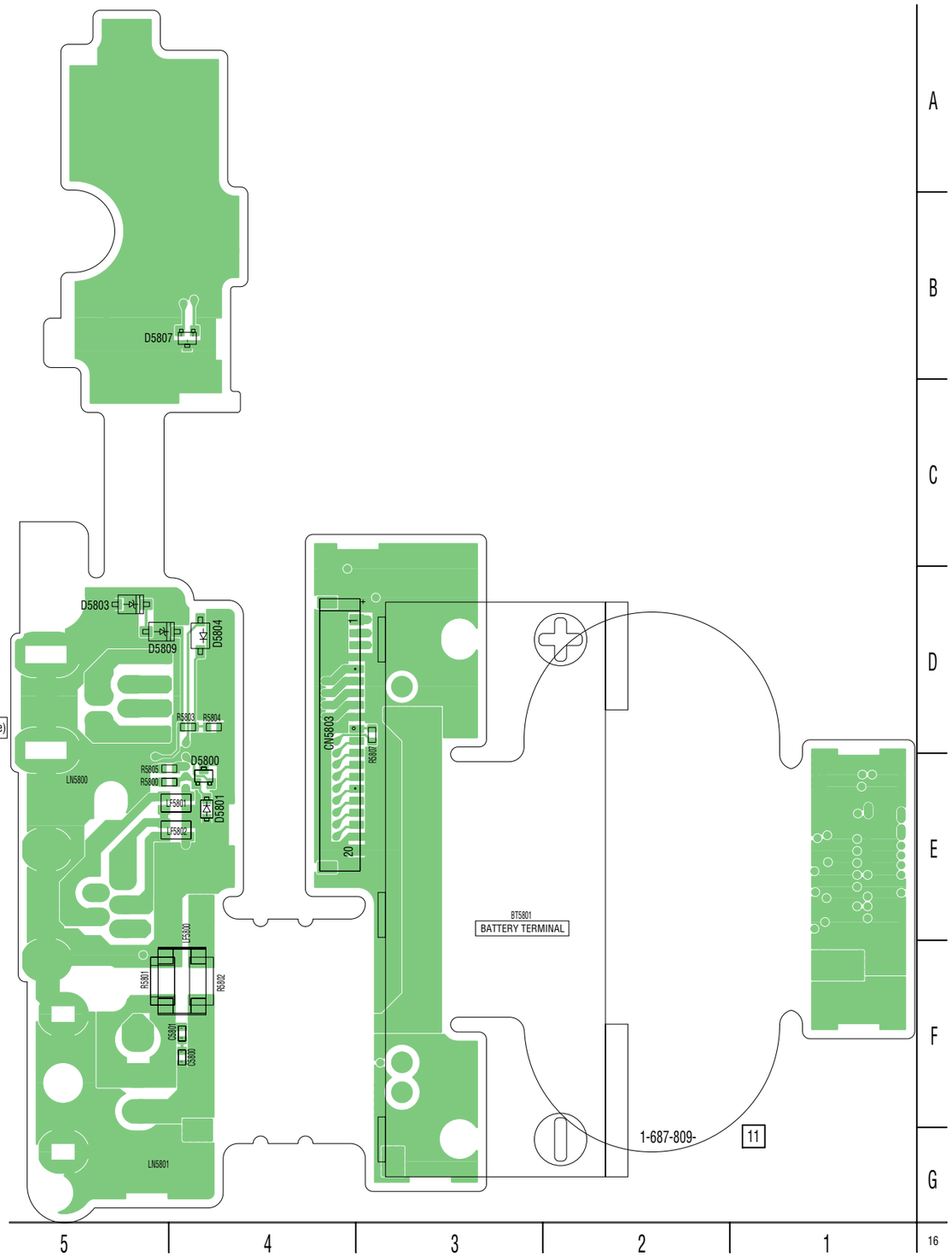
• Refer to page 4-61 for common note for printed wiring board.

• : Uses unleaded solder.

BJ-004 BOARD(SIDE A)



BJ-004 BOARD(SIDE B)

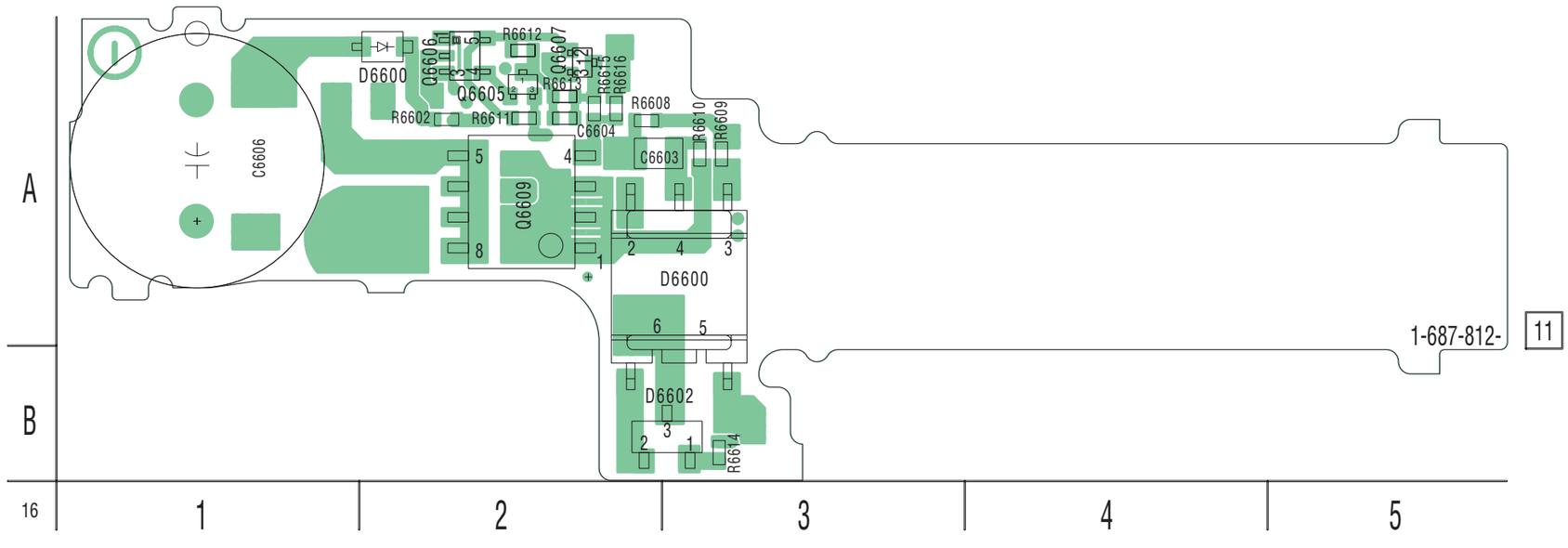


ST-084 (FLASH DRIVER) PRINTED WIRING BOARD

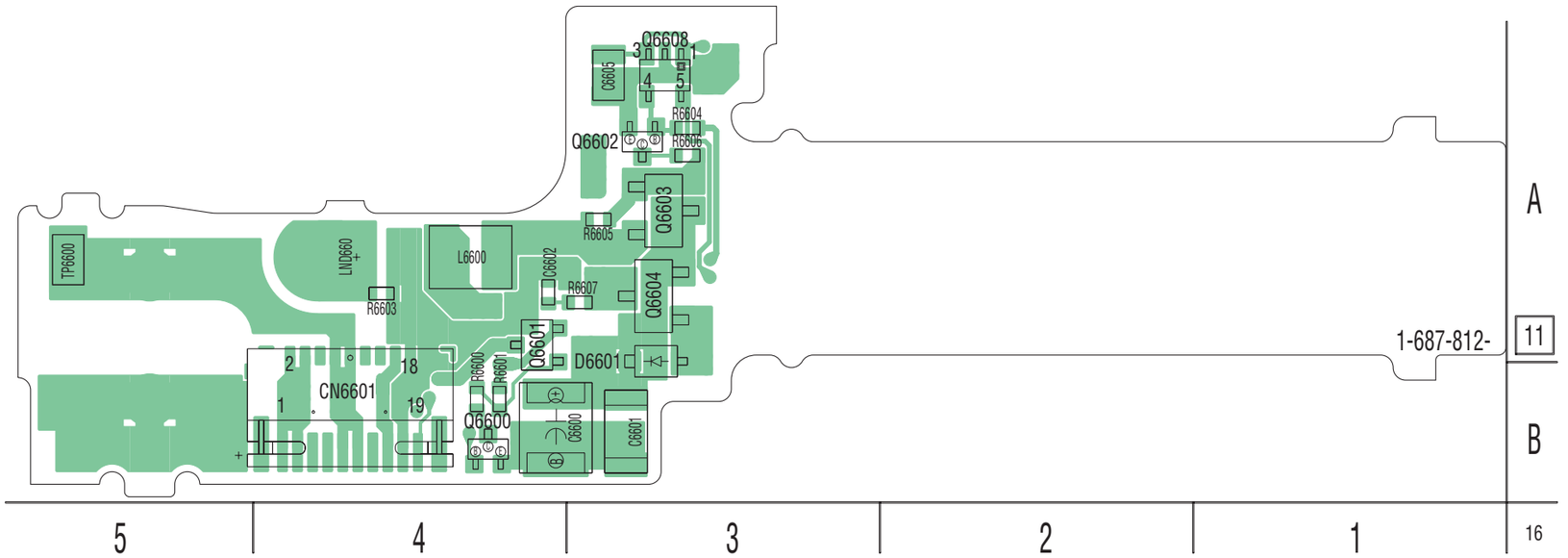
• Refer to page 4-61 for common note for printed wiring board.

• : Uses unleaded solder.

ST-084 BOARD(SIDE A)



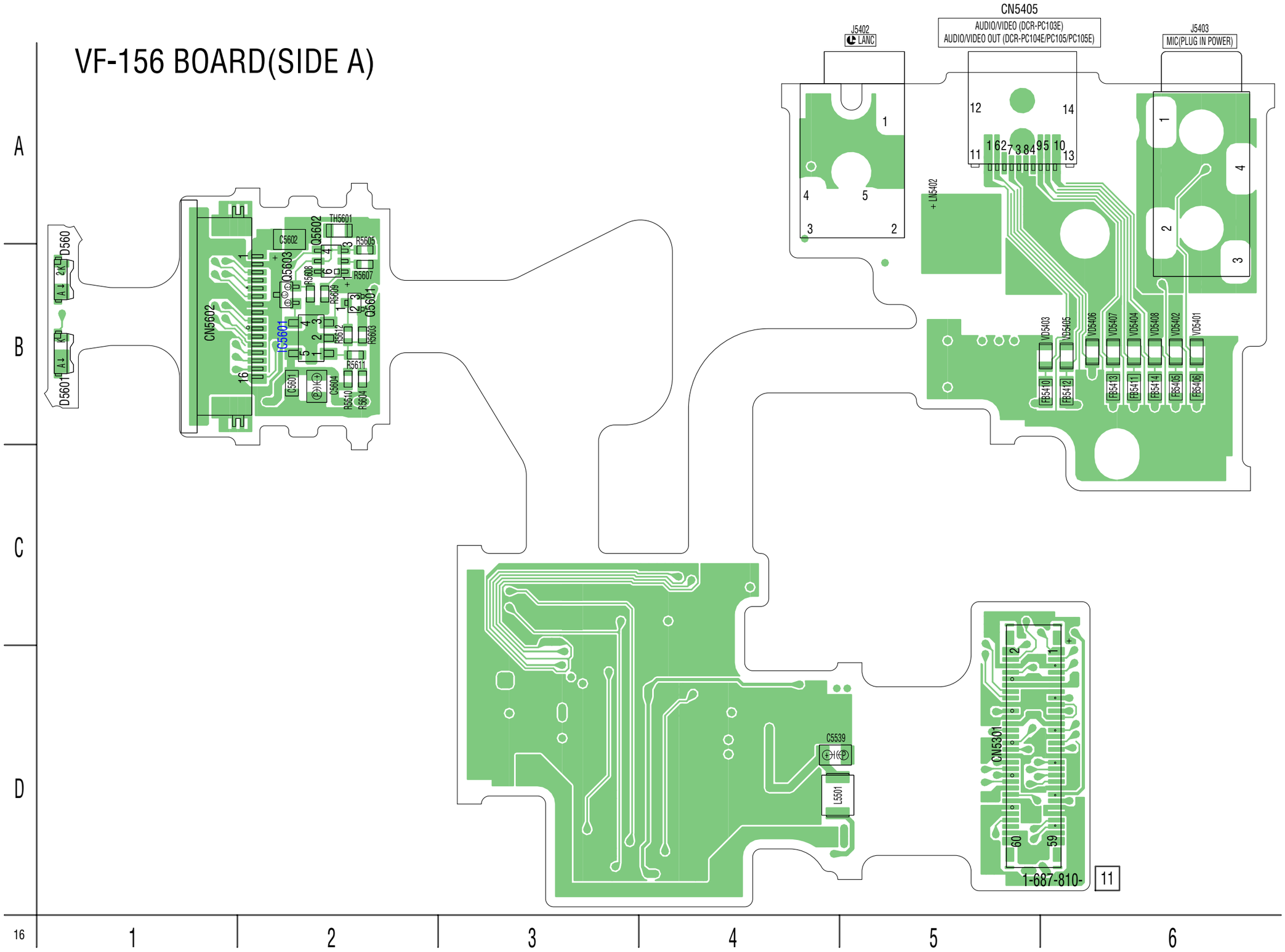
ST-084 BOARD(SIDE B)



VF-156 (MIC AMP, JACK) PRINTED WIRING BOARD

• Refer to page 4-61 for common note for printed wiring board.

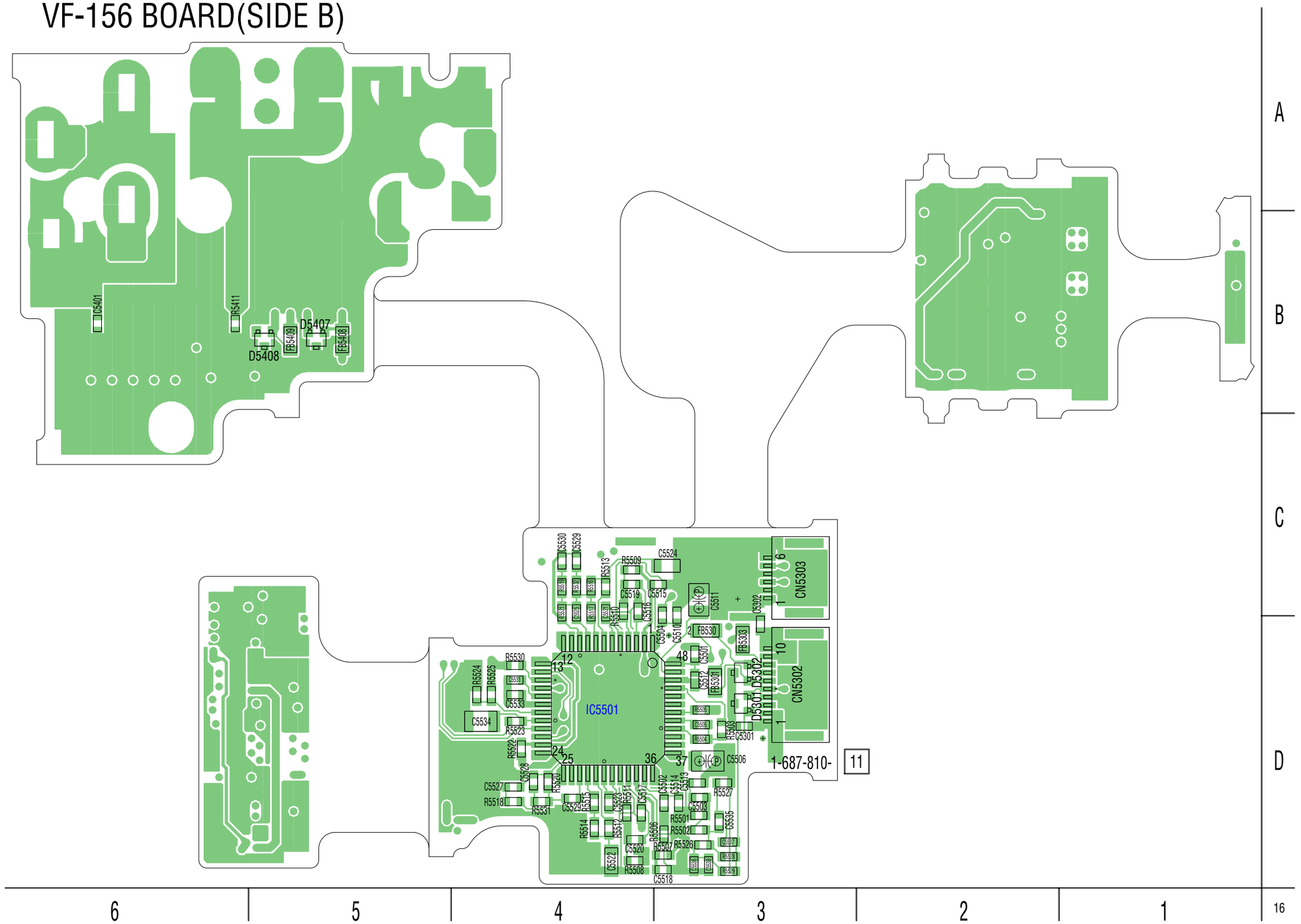
• : Uses unleaded solder.



• Refer to page 4-61 for common note for printed wiring board.

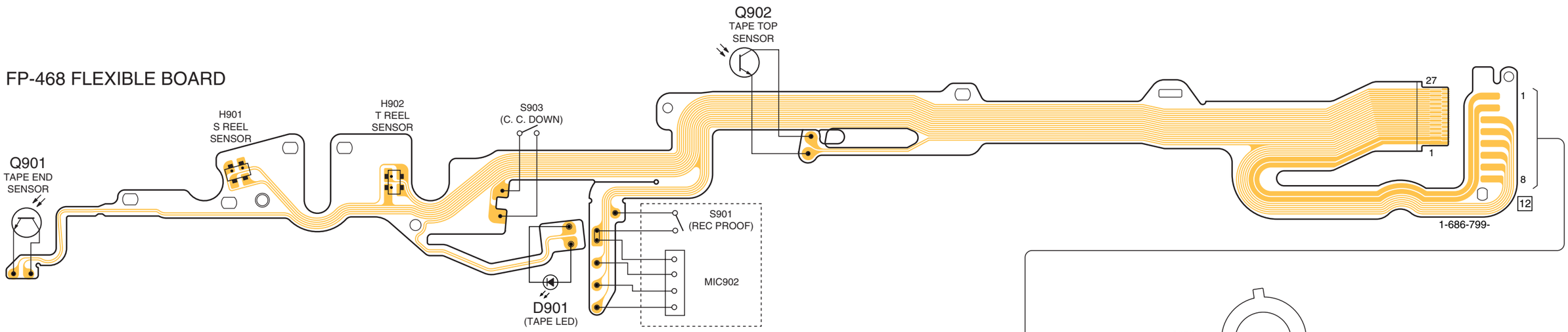
• : Uses unleaded solder.

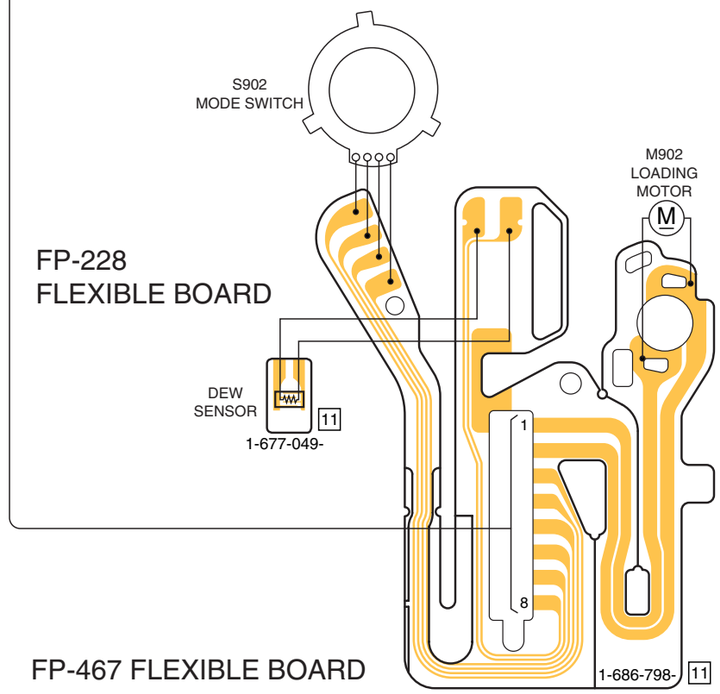
VF-156 BOARD(SIDE B)



Printed wiring board of the VC-319 board are not shown.
Pages from 4-77 to 4-80 are not shown.

FP-467/468/228 FLEXIBLE WIRING BOARD (MD BLOCK)





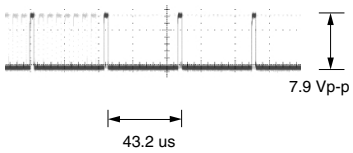
COVER

CD-444 PRINTED WIRING BOARD

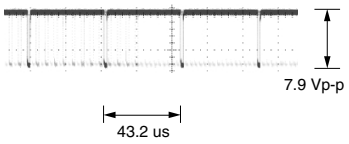
4-4. WAVEFORMS

CD-444 BOARD

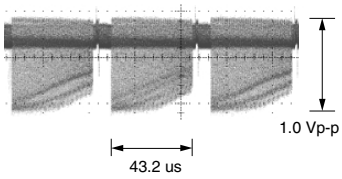
① IC5101 ①,④
CAMERA REC



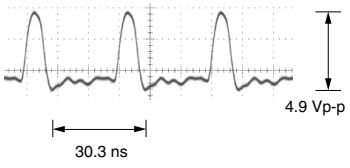
② IC5101 ②,③
CAMERA REC



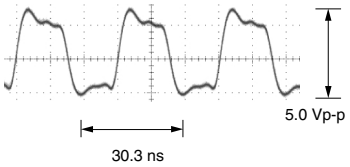
③ IC5101 ⑧
CAMERA REC



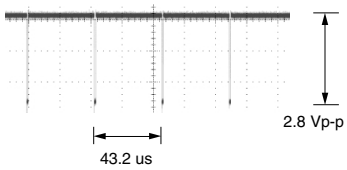
④ IC5101 ⑩
CAMERA REC



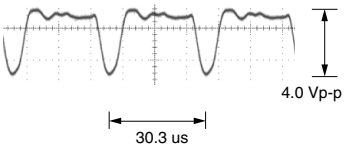
⑤ IC5101 ⑪,⑫
CAMERA REC



⑥ IC5102 ①
CAMERA REC

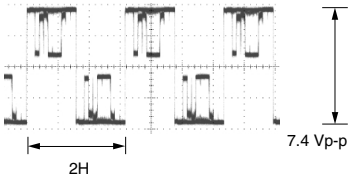


⑦ IC5102 ⑬,⑭
CAMERA REC

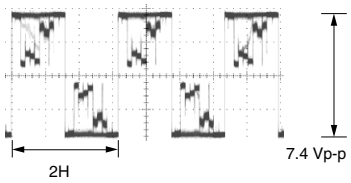


PD-193 BOARD

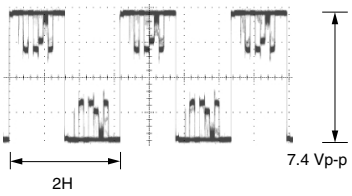
① IC600 ⑲



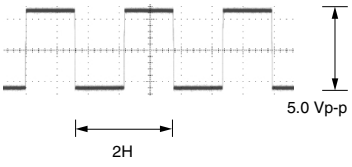
② IC600 ⑳



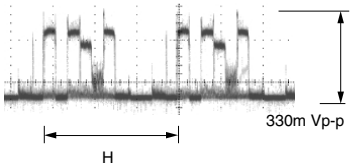
③ IC600 ㉑



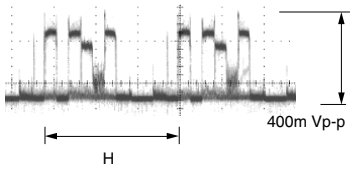
④ IC600 ㉕



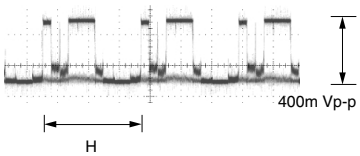
⑤ IC600 ㊳



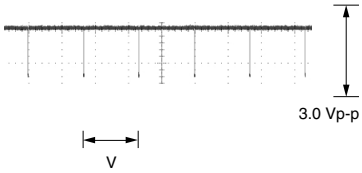
⑥ IC600 ㊴



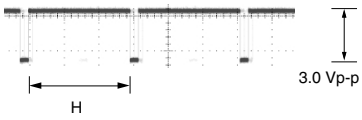
⑦ IC600 ㊵



⑧ IC600 ㊷



⑨ IC600 ㊸



Waveforms of the VC-319 board are not shown.
Pages from 4-85 to 4-86 is not shown.

4-5. MOUNTED PARTS LOCATION

no mark : side A
* mark : side B

CD-444 BOARD

	C510	B-3
	C510	B-3
*	C5101	B-2
*	C5102	B-3
*	C5103	B-2
	C5104	B-3
	C5105	B-2
*	C5108	B-3
	C5109	A-3
	C5110	A-3
	C5111	B-2
	C5112	B-2
	C5113	B-3
*	C5114	B-3
	C5115	B-2
*	C5203	D-3
*	C5204	C-2
*	C5205	C-2
*	C5206	C-3
*	C5207	D-2
*	C5208	D-2
*	C5209	D-2
*	C5210	D-2
*	C5211	D-2
*	C5212	D-2
*	C5213	D-2
*	C5214	D-2
*	C5215	D-3
*	C5216	C-2
*	C5217	D-3
*	CN5001	C-1
*	CN5003	D-3
*	FB5101	B-3
*	IC5101	A-3
	IC5102	B-2
*	IC5201	D-3
	L5101	B-3
	L5102	B-2
*	L5201	C-2
*	Q5101	B-2
*	R5001	D-3
*	R5002	B-2
*	R5101	B-2
*	R5102	B-3
*	R5201	C-2
*	R5202	C-2
*	R5203	D-3
*	R5204	D-3
*	R5205	C-2
*	R5206	C-2
*	R5207	D-3
*	R5208	C-2
*	R5210	D-3
*	R5211	C-2
*	R5212	C-3
*	R5213	C-2
*	R5214	D-3
*	R5215	D-3
*	R5216	D-3
	SE5201	C-2
	SE5202	D-3

PD-193 BOARD

	C600	B-1
	C601	B-2
	C602	A-2
	C603	A-2
	C604	A-2
	C605	A-2
	C606	A-3
	C609	B-3
	C610	B-2
	C611	B-2
	C615	B-3
	C616	B-2
	C617	B-2
	C618	B-2
	C619	B-2
	C620	B-4
	C621	B-5
	C622	B-5
	C623	B-3
	C624	B-3
	C625	B-3
	C626	B-2
	C627	B-1
	C628	B-3
	C629	B-4
	C630	B-3
	CN600	B-1
	CN602	C-3
	CN604	C-2
	CN605	A-5
	CN606	C-5
	D604	B-2
	D605	B-3
	FB600	A-2
	FB601	B-2
	IC600	A-2
	IC601	B-5
	L600	B-1
	L601	B-2
	Q603	B-3
	Q604	B-3
	Q605	B-2
	Q606	B-3
	Q607	B-3
	Q608	B-4
	Q609	B-5
	Q610	B-5
	Q611	B-3
	R602	B-2
	R605	B-2
	R606	B-2
	R608	B-2
	R611	B-2
	R612	B-2
	R614	A-3
	R615	A-3
	R616	A-3
	R617	A-2
	R618	B-2
	R619	B-2
	R620	B-2
	R621	B-2
	R622	B-2
	R623	B-4
	R629	B-3
	R630	B-3
	R631	B-5
	R632	B-5
	R633	B-5
	R634	B-5
	R635	B-4
	R636	B-5
	R637	B-5
	R638	B-5
	R639	A-1
	R640	B-4
	R641	B-3
	R642	B-3
	R643	B-3
	R644	B-3
	TH001	B-5

BJ-004 BOARD

*	BT5801	E-3
*	C5800	F-4
*	C5801	F-4
	CN5800	E-1
	CN5801	D-5
	CN5802	E-5
*	CN5803	D-4
	CN5804	D-3
*	D5800	E-4
*	D5801	E-4
	D5802	E-5
*	D5803	D-5
*	D5804	D-4
	D5805	F-5
*	D5807	B-4
	D5808	D-4
*	D5809	D-5
	J5801	F-5
*	LF5800	F-4
*	LF5801	E-4
*	LF5802	E-4
*	R5800	E-4
*	R5801	F-5
*	R5802	F-4
*	R5803	D-4
*	R5804	D-4
*	R5805	E-4
*	R5807	D-3
	R5808	C-4
	S5801	B-5
	S5802	A-5

ST-084 BOARD

*	C6600	B-4
*	C6601	B-3
*	C6602	A-4
	C6603	A-2
	C6604	A-2
*	C6605	A-3
	C6606	A-1
*	CN6601	B-4
	D6600	A-2
	D6600	A-3
*	D6601	A-3
	D6602	B-3
*	L6600	A-4
*	Q6600	B-4
*	Q6601	A-4
*	Q6602	A-3
*	Q6603	A-3
*	Q6604	A-3
	Q6605	A-2
	Q6606	A-2
	Q6607	A-2
*	Q6608	A-3
	Q6609	A-2
*	R6600	B-4
*	R6601	B-4
	R6602	A-2
*	R6603	A-4
*	R6604	A-3
*	R6605	A-3
*	R6606	A-3
*	R6607	A-3
	R6608	A-2
	R6609	A-3
	R6610	A-3
	R6611	A-2
	R6612	A-2
	R6613	A-2
	R6614	B-3
	R6615	A-2
	R6616	A-2
*	TP6600	A-5

COVER

4-3. PRINTED WIRING BOARDS

no mark : side A
* mark : side B

VF-156 BOARD

* C5301	D-3	* R5504	D-3
* C5302	C-3	* R5505	D-3
* C5401	B-6	* R5506	D-3
* C5501	D-3	* R5507	D-3
* C5502	D-3	* R5508	D-4
* C5503	D-3	* R5509	C-4
* C5504	C-3	* R5510	C-4
* C5505	D-3	* R5511	D-4
* C5506	D-3	* R5512	D-4
* C5510	C-3	* R5513	C-4
* C5511	C-3	* R5514	D-4
* C5512	D-3	* R5515	D-4
* C5513	D-3	* R5516	C-4
* C5514	D-3	* R5517	C-4
* C5515	C-3	* R5518	D-4
* C5516	C-4	* R5519	C-4
* C5517	D-4	* R5520	D-4
* C5518	D-3	* R5521	C-4
* C5519	C-4	* R5522	D-4
* C5520	D-4	* R5523	D-4
* C5521	C-4	* R5524	D-4
* C5522	D-4	* R5525	D-4
* C5523	D-4	* R5526	D-3
* C5524	C-3	* R5527	D-3
* C5525	C-4	* R5528	D-3
* C5527	D-4	* R5529	D-3
* C5528	D-4	* R5530	D-4
* C5529	C-4	* R5531	D-4
* C5529	D-4	* R5532	C-4
* C5530	C-4	R5603	B-2
* C5531	D-4	R5604	B-2
* C5533	D-4	R5605	A-2
* C5534	D-4	R5607	B-2
* C5535	D-3	R5608	B-2
* C5536	D-3	R5609	B-2
* C5537	D-3	R5610	B-2
* C5538	D-3	R5611	B-2
C5539	D-4	R5612	B-2
C5601	B-2		
C5602	A-2	TH5601	A-2
C5604	B-2		
		VD5401	B-6
CN5301	D-5	VD5402	B-6
* CN5302	D-3	VD5403	B-6
* CN5303	C-3	VD5404	B-6
CN5405	A-5	VD5405	B-6
CN5602	B-1	VD5406	B-6
		VD5407	B-6
* D5301	D-3	VD5408	B-6
* D5302	D-3		
* D5407	B-5		
* D5408	B-5		
D5601	B-1		
D5602	B-1		
* FB530	D-3		
* FB5301	D-3		
* FB5303	D-3		
FB5405	B-6		
FB5406	B-6		
* FB5408	B-5		
* FB5409	B-5		
FB5410	B-6		
FB5411	B-6		
FB5412	B-6		
FB5413	B-6		
FB5414	B-6		
* IC5501	D-4		
IC5601	B-2		
J5402	A-5		
J5403	A-6		
L5501	D-4		
Q5601	B-2		
Q5602	A-2		
Q5603	B-2		
* R5411	B-6		
* R5501	D-3		
* R5502	D-3		
* R5503	D-3		

Mounted parts location of the VC-319 board is not shown.
Pages from 4-89 to 4-90 is not shown.

COVER

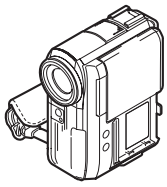
NOTE

5. REPAIR PARTS LIST

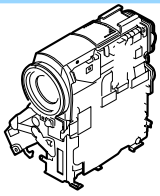
NOTE: Characters A to Z of the electrical parts list indicate location of exploded views in which the desired part is shown.

Link

EXPLODED VIEWS

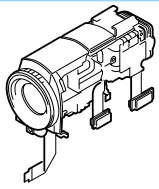


OVERALL



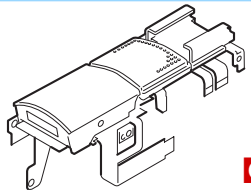
A

VTR COMPLETE SECTION



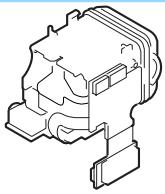
B

LENS/EVF/ST SECTION



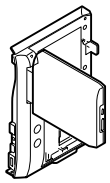
C

STROBOSCOPE SECTION



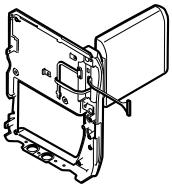
D

EVF SECTION



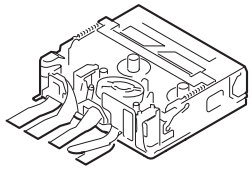
E

CABINET (R) SECTION-1

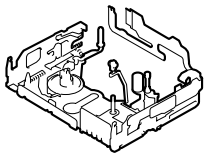


F

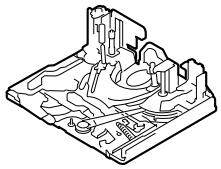
CABINET (R) SECTION-2



MECHANISM DECK OVERALL (Z100)



LS CHASSIS BLOCK ASSEMBLY



MECHANISM CHASSIS BLOCK ASSEMBLY

Link

ELECTRICAL PARTS LIST

ACCESSORIES

BJ-004 BOARD E	FP-697 FLEXIBLE BOARD	PD-193 BOARD A
CD-444 BOARD B	LI-070 BOARD A	ST-084 BOARD F
FP-672 FLEXIBLE BOARD	NS-018 BOARD A	VF-156 BOARD D
VC-319 BOARD A		

COVER

5. REPAIR PARTS LIST

NOTE:

- -XX, -X mean standardized parts, so they may have some differences from the original one.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.
- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- CAPACITORS:
  uF: µF
- COILS
  uH: µH
- RESISTORS
  All resistors are in ohms.
  METAL: metal-film resistor
  METAL OXIDE: Metal Oxide-film resistor
  F: nonflammable
- SEMICONDUCTORS
  In each case, u: µ, for example:
  uA...: µA... , uPA... , µPA... ,
  uPB... , µPB... , uPC... , µPC... ,
  uPD..., µPD...
- Abbreviation
  EE : East European model
  HK : Hong Kong model
  CH : Chinese model
  CND : Canadian model
  JE : Tourist model
  KR : Korea model
  AUS : Australian model

When indicating parts by reference number, please include the board name.

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

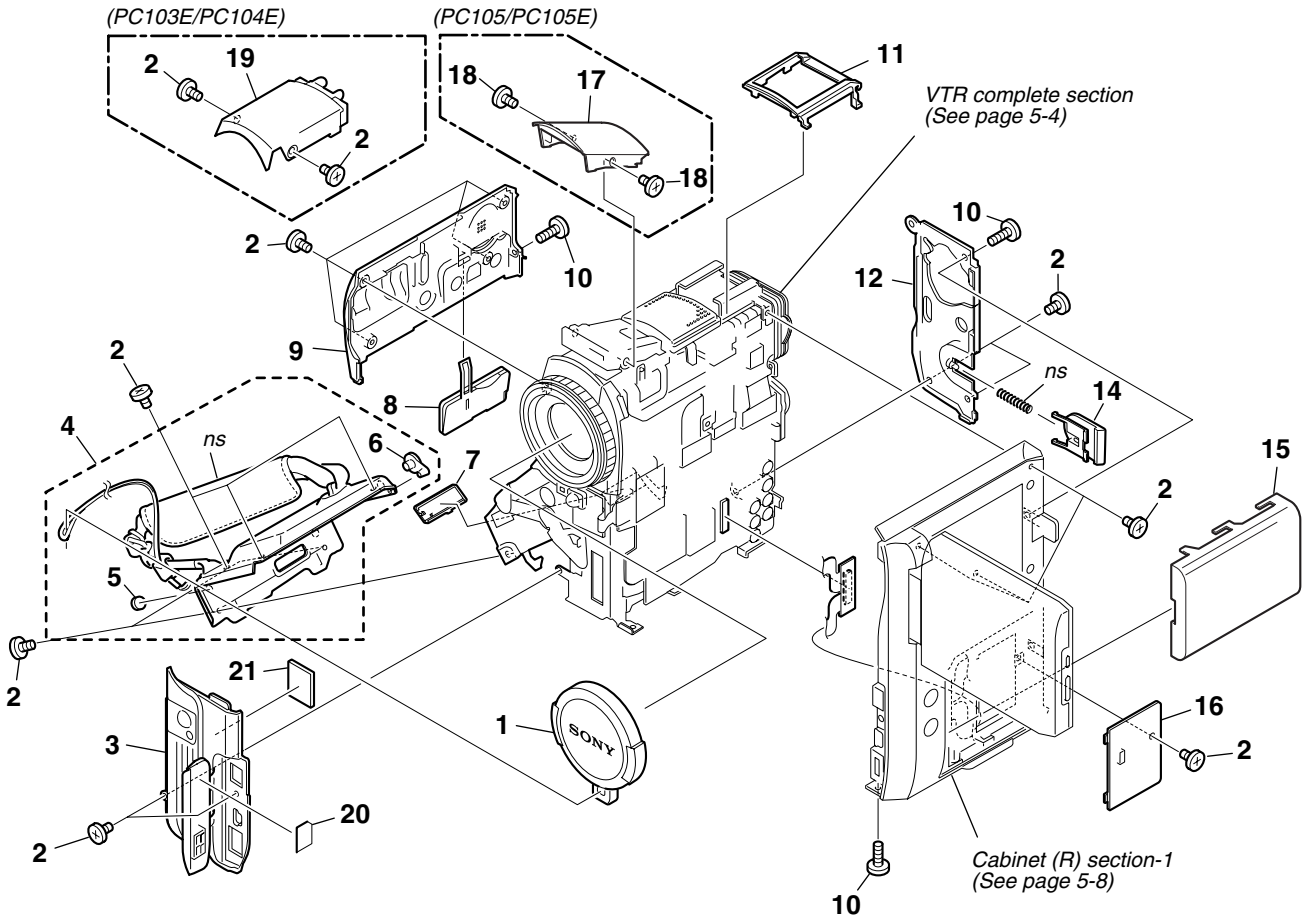
COVER

5. REPAIR PARTS LIST

5-1. EXPLODED VIEWS

5-1-1. OVERALL SECTION

ns : not supplied



Ref. No.	Part No.	Description
1	X-3953-477-1	CAP ASSY, LENS
2	4-974-725-01	SCREW (M1.7), LOCK ACE, P2
3	X-3953-361-1	CABINET (FRONT) ASSY (PC105/PC105E)
3	X-3953-399-1	CABINET (FRONT) ASSY (PC103E/PC104E)
4	X-3953-394-1	CABINET (G) ASSY (PC105/PC105E)
4	X-3953-400-1	CABINET (G) ASSY (PC103E/PC104E)
5	3-969-387-01	FOOT, RUBBER
6	3-082-504-01	COVER (HP), JACK
7	3-075-309-01	KNOB, EJECT
8	X-3953-392-1	COVER (L) ASSY, JACK (PC104E/PC105/PC105E)
8	X-3953-398-1	COVER (L) ASSY, JACK (PC103E)
9	3-082-537-11	CABINET (L)
10	3-989-735-31	SCREW (M1.7), LOCK ACE, P2
11	3-082-522-01	CABINET (UPPER)

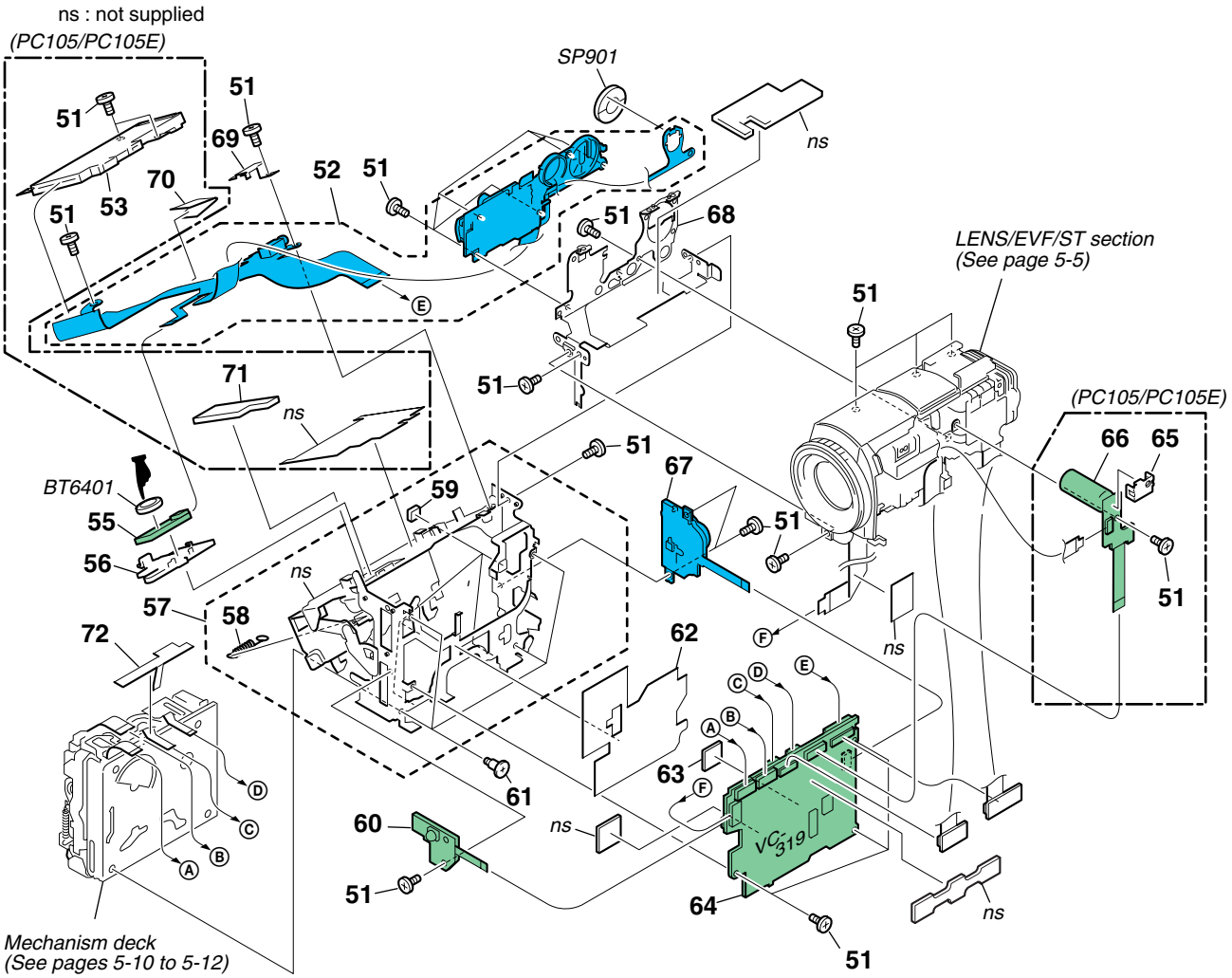
Ref. No.	Part No.	Description
12	3-082-529-11	CABINET (REAR) (PC105/PC105E)
12	3-082-529-21	CABINET (REAR) (PC103E)
12	3-082-529-31	CABINET (REAR) (PC104E)
14	3-082-530-01	LOCK, BATTERY
15	3-082-552-01	COVER, BATTERY
16	3-082-525-01	LID, CPC
17	X-3953-487-1	CABINET (UPPER) ASSY, ST (PC105:CND,E,HK,JE,KR/PC105E)
17	X-3953-578-1	CABINET (UPPER) ASSY, ST (PC105:US)
18	3-078-893-11	0 PLATE +P2 MAIN EG GRIP M1.7 (PC105/PC105E)
19	X-3953-488-1	CABINET (N) ASSY,ST (PC103E/PC104E)
20	3-082-923-01	LABEL, DV (PC104E/PC105/PC105E)
20	3-082-923-11	LABEL, DV (PC103E)
21	3-084-515-01	SHEET (FRONT), LIGHT PROTECTOR

COVER

5. REPAIR PARTS LIST

5-1-2. VTR COMPLETE SECTION

ns : not supplied



: BT6401 (Lithium battery) LI-070 board on the mount position. (See page 4-65)

CAUTION :
Danger of explosion if battery is incorrectly replaced.
Replace only with the same or equivalent type.

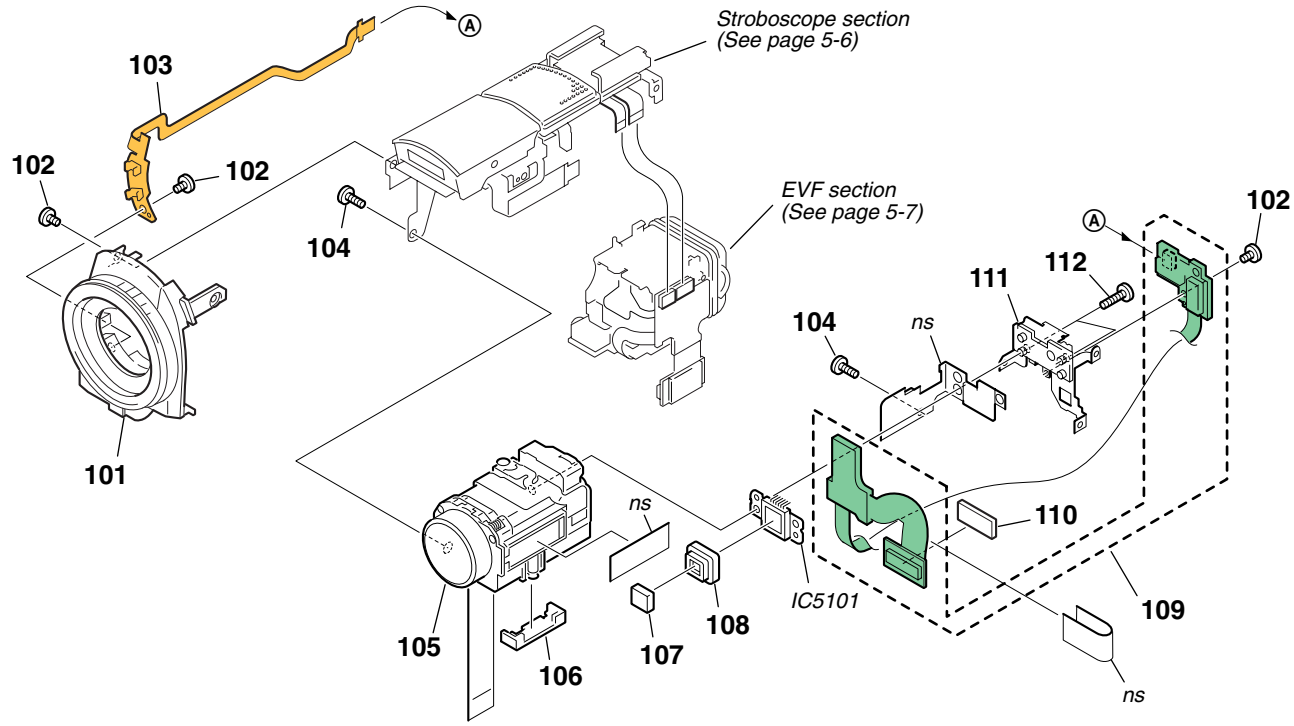
Ref. No.	Part No.	Description
51	4-974-725-01	SCREW (M1.7), LOCK ACE, P2
52	1-477-820-11	SWITCH BLOCK, CONTROL (FK4400) (PC105/PC105E)
52	1-477-820-21	SWITCH BLOCK, CONTROL (FK4400) (PC103E/PC104E)
53	1-816-271-21	CONNECTOR, MEMORY STICK 10P (PC105/PC105E)
55	A-7016-632-A	LI-070 BOARD, COMPLETE
56	3-082-538-01	HOLDER, LI
57	X-3953-354-1	FRAME ASSY, G
58	3-954-730-01	SPRING, TENSION
59	3-975-921-01	SHEET, VIBRATION PROOF
60	A-7016-623-A	NS-018 BOARD, COMPLETE
61	3-062-214-01	SCREW (M1.4X1.5)
62	3-082-580-01	SHEET, VC HEAT INSULATION
63	3-082-583-01	SPACER, VC
64	A-7016-987-A	VC-319A BOARD, COMPLETE (PC105) (SERVICE)
64	A-7016-988-A	VC-319B BOARD, COMPLETE (PC104E/PC105E) (SERVICE)
64	A-7016-989-A	VC-319C BOARD, COMPLETE (PC103E) (SERVICE)
65	3-082-545-01	HOLDER, CONDENSER (PC105/PC105E)
66	A-7016-619-A	ST-084 BOARD, COMPLETE (PC105/PC105E)
67	1-477-821-11	SWITCH BLOCK, CONTROL (PS4400) (PC105/PC105E)
67	1-477-821-21	SWITCH BLOCK, CONTROL (PS4400) (PC103E/PC104E)
68	X-3953-373-1	FRAME ASSY, FK
69	X-3953-460-1	HP RETAINER ASSY
70	3-083-938-01	SHEET, SHIELD, MS (PC105/PC105E)
71	3-083-908-01	CUSHION, MS (PC105/PC105E)
72	3-083-864-01	TAPE (Z), DF
SP901	1-825-261-11	LOUD SPEAKER (1.6CM)

COVER

5. REPAIR PARTS LIST

5-1-3. LENS/EVF/ST SECTION

ns : not supplied

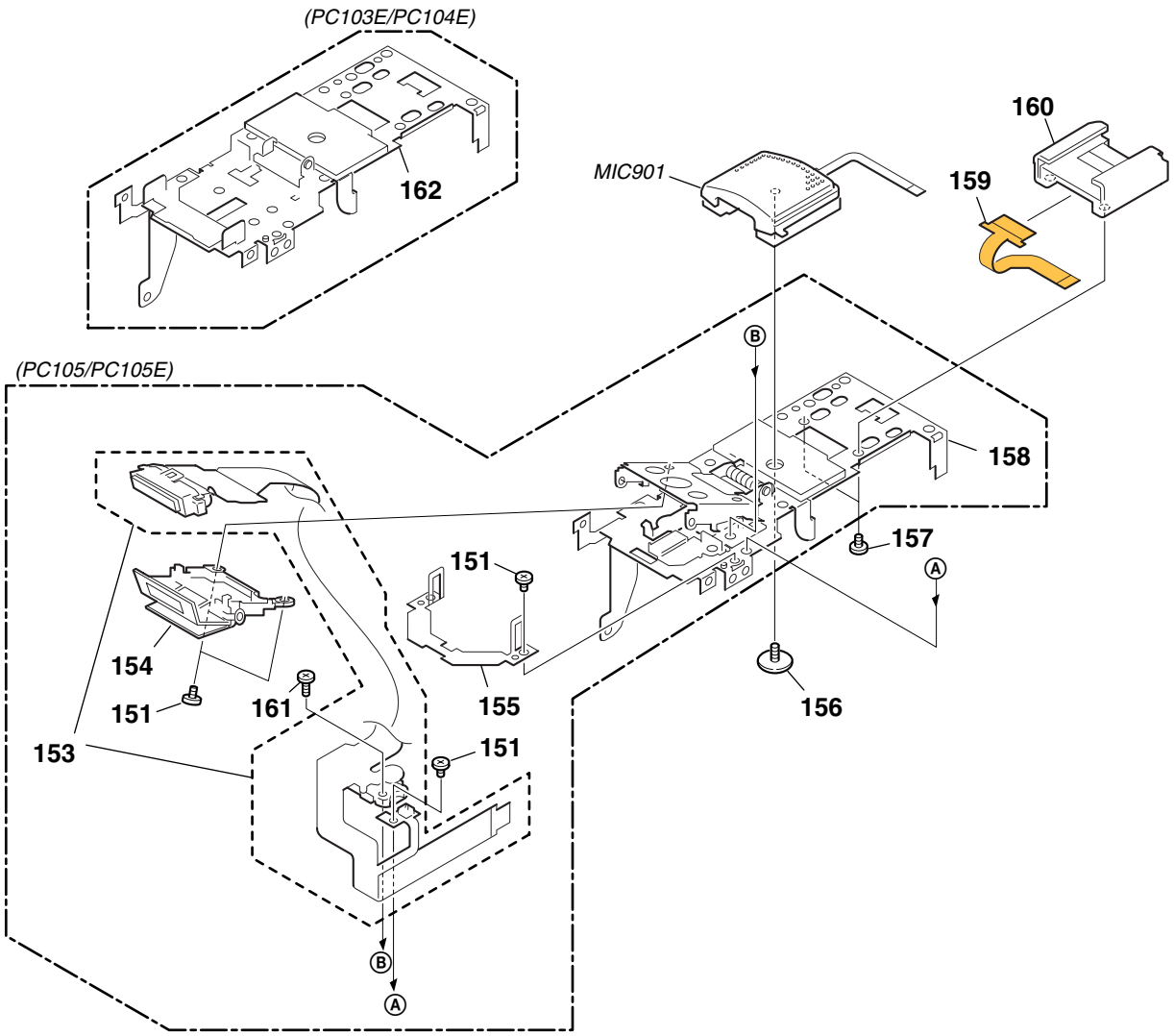


Be sure to read “Precautions upon replacing CCD imager” on page 4-8 when changing the CCD imager.

Ref. No.	Part No.	Description
101	X-3953-355-1	RING ASSY, MF (PC105/PC105E)
101	X-3953-402-1	RING ASSY (N), MF (PC103E/PC104E)
102	4-974-725-01	SCREW (M1.7), LOCK ACE, P2
103	A-7016-616-A	FP-672 BOARD, COMPLETE
104	3-713-791-71	SCREW (M1.7X4)
105	8-848-769-01	DEVICE, LENS LSV-751A
106	X-3953-094-2	PROTECTOR ASSY, MR
107	1-758-569-11	FILTER BLOCK, OPTICAL
108	3-053-973-01	RUBBER (W), SEAL
109	A-7016-628-A	CD-444 BOARD, COMPLETE
110	3-082-559-01	CUSHION, CONNECTOR RETAINER
111	X-3953-364-1	FRAME ASSY, CD
112	3-713-791-21	SCREW (M1.7X8), TAPPING, P2
IC5101	A-7031-367-A	CCD BLOCK ASSY (CCD IMAGER)

5-1-4. STROBOSCOPE SECTION

ns : not supplied



Ref. No.	Part No.	Description
151	3-078-893-11	0 PLATE +P2 MAIN EG GRIP M1.7 (PC105/PC105E)
⚠153	1-477-819-11	FLASH UNIT (FL4400) (PC105/PC105E)
154	X-3953-370-1	CABINET (LOWER) ASSY, ST (PC105/PC105E)
155	3-082-542-01	STOPPER, ST (PC105/PC105E)
156	3-082-584-01	SCREW, TAPPING, SPECIAL
157	3-080-198-11	SCREW(M1.7),LOCK ACE,P2

Ref. No.	Part No.	Description
158	X-3953-362-1	FRAME ASSY, ST (PC105/PC105E)
159	1-687-816-11	FP-671 FLEXIBLE BOARD
160	1-793-996-11	CONNECTOR, EXTERNAL
161	3-068-597-11	GRIP (M1.4), EG
162	X-3953-391-1	FRAME ASSY (N), ST (PC103E/PC104E)
MIC901	1-542-523-11	MICROPHONE UNIT

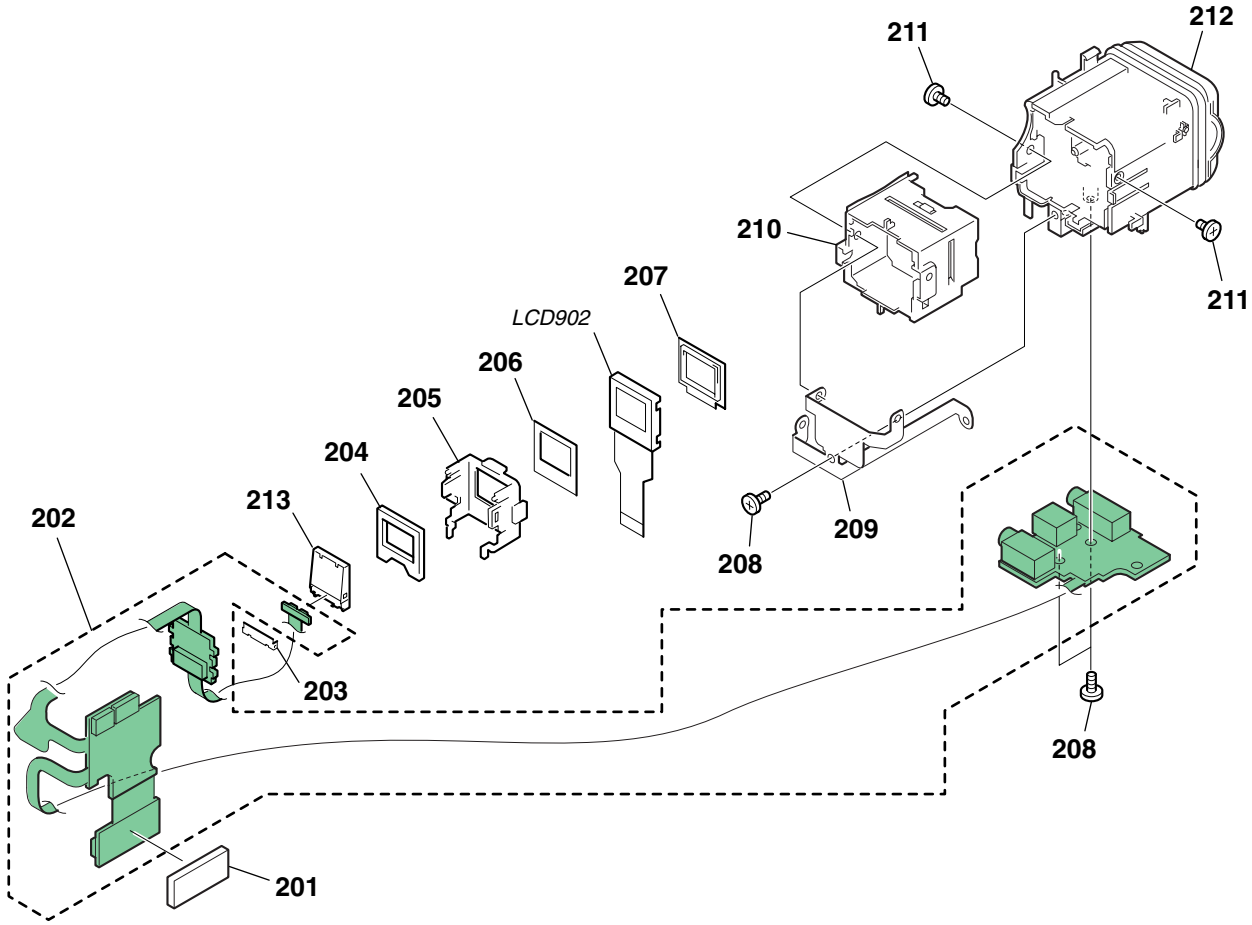
Note :
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Note :
Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

COVER

5. REPAIR PARTS LIST

5-1-5. EVF SECTION



Ref. No.	Part No.	Description
201	3-082-559-01	CUSHION, CONNECTOR RETAINER
202	A-7016-614-A	VF-156 BOARD, COMPLETE
203	3-069-940-01	SHEET METAL, BL RETAINER
204	3-062-205-11	CUSHION (B), BL
205	3-075-319-01	BL UNIT
206	3-068-772-01	CUSHION (L), BL
* 207	3-062-767-01	CUSHION, LCD

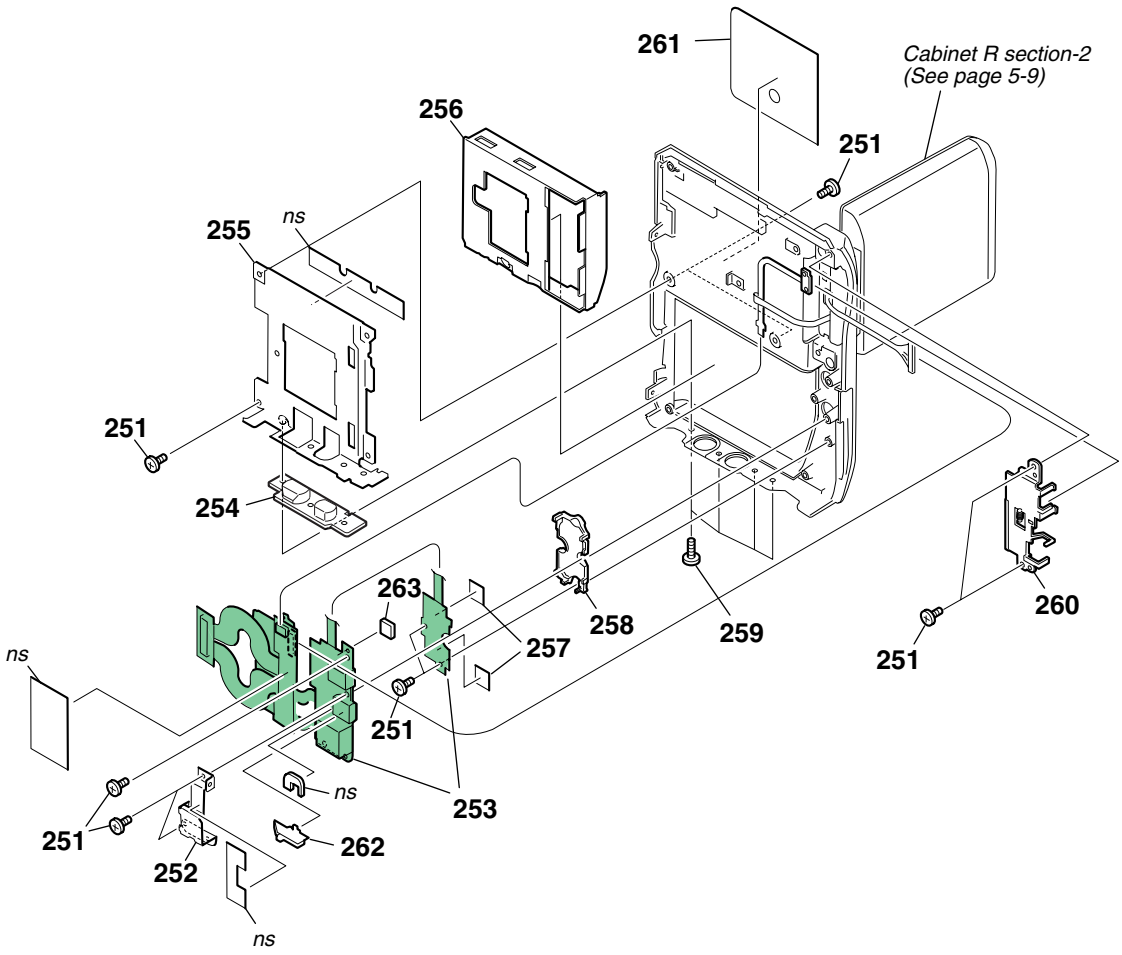
Ref. No.	Part No.	Description
208	3-713-791-71	SCREW (M1.7X4)
209	3-082-547-01	PLATE, FIXED, VF
210	X-3953-366-1	GUIDE ASSY, VF SLEEVE
211	4-974-725-01	SCREW (M1.7), LOCK ACE, P2
212	X-3953-365-2	VF ASSY
213	1-476-810-11	BLOCK(0.44), LIGHT GUIDE PLATE
LCD902	8-753-028-47	LCX032AN-5

COVER

5. REPAIR PARTS LIST

5-1-6. CABINET (R) SECTION-1

ns : not supplied



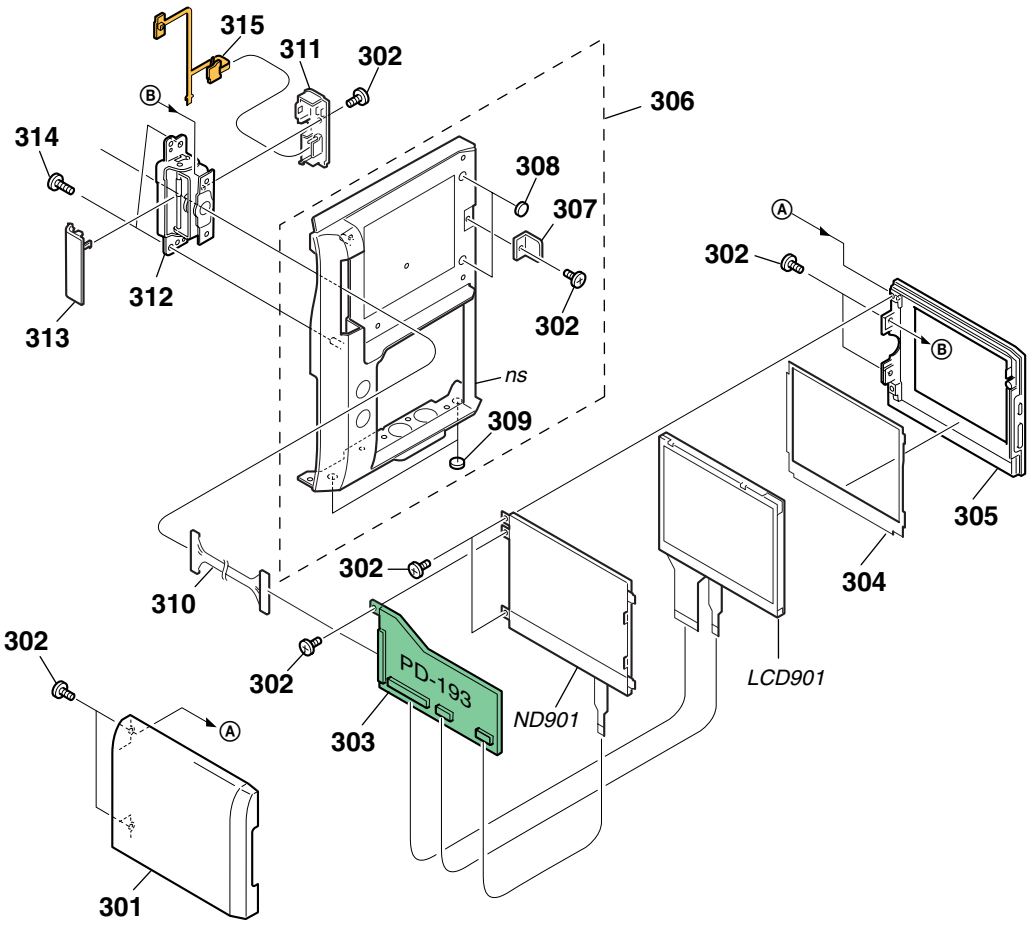
Ref. No.	Part No.	Description
251	4-974-725-01	SCREW (M1.7), LOCK ACE, P2
252	3-082-526-01	PLATE, FIXED, DC CONNECTOR
253	A-7016-629-A	BJ-004 BOARD, COMPLETE
254	3-082-482-01	SCREW
255	3-082-523-01	BRACKET, BATTERY
256	3-082-524-02	HOLDER, BATTERY
257	3-076-228-01	SHEET (SMALL), MUFFLE

Ref. No.	Part No.	Description
258	3-082-480-01	BUTTON, CF (PC105/PC105E)
258	3-082-480-11	BUTTON, CF (PC103E/PC104E)
259	3-989-735-31	SCREW (M1.7), LOCK ACE, P2
260	X-3953-360-2	PLATE ASSY, BLIND
261	3-082-531-11	SHEET, GUARD
262	X-3953-489-1	GUIDE ASSY, LIGHT, LED
263	3-084-055-02	CUSHION (CF)

COVER

5. REPAIR PARTS LIST

5-1-7. CABINET (R) SECTION-2

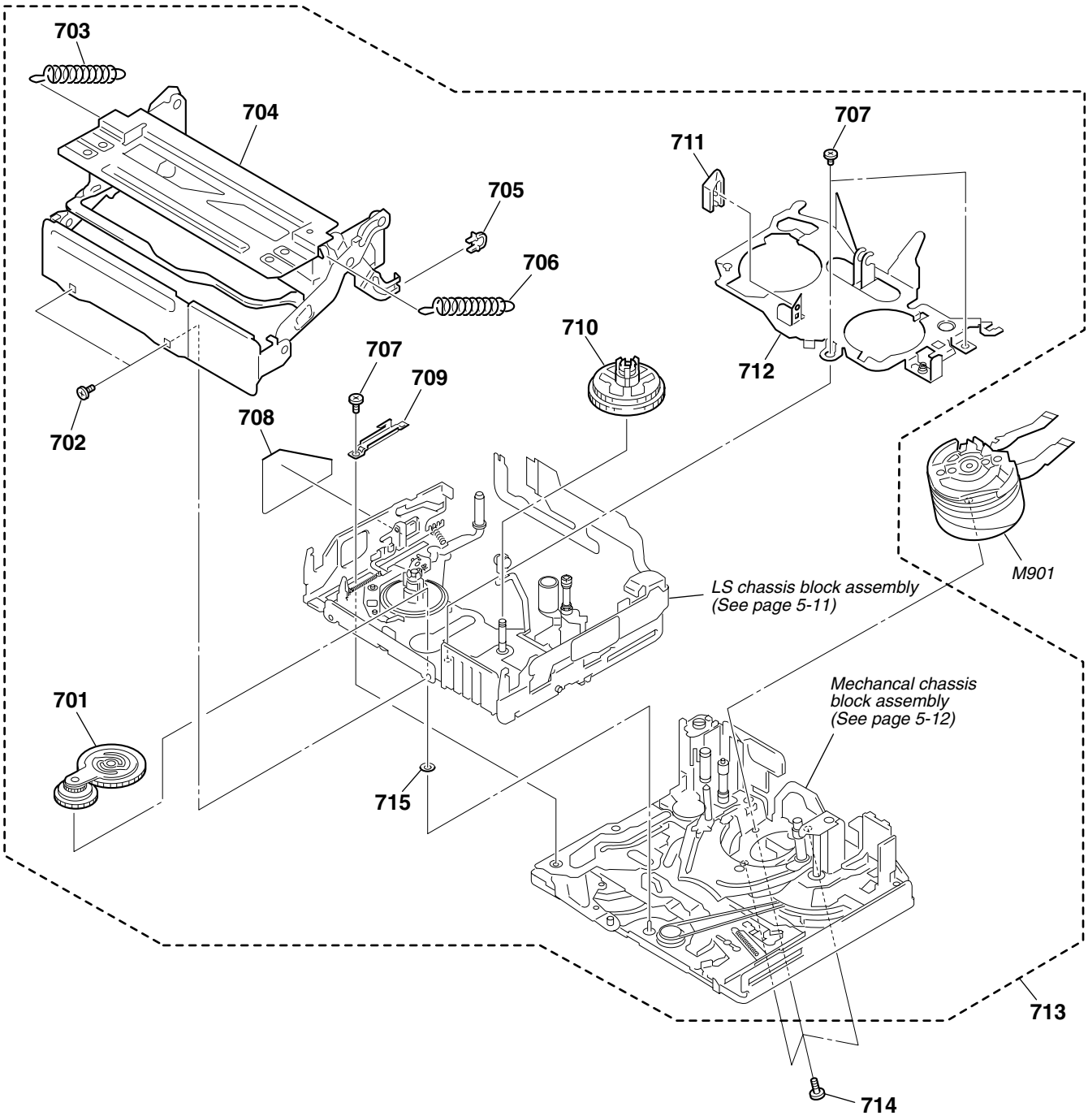


Ref. No.	Part No.	Description
301	3-082-532-11	CABINET (R), LCD (PC105E)
301	3-082-532-21	CABINET (R), LCD (PC105)
301	3-083-693-01	CABINET (R) (N), LCD (PC103E)
301	3-083-693-11	CABINET (R) (N), LCD (PC104E)
302	4-974-725-01	SCREW (M1.7), LOCK ACE, P2
303	A-7016-624-A	PD-193 BOARD, COMPLETE
304	3-082-533-01	SHEET, PROTECTION, LCD PANEL
305	X-3953-358-1	CABINET (L) ASSY, LCD
306	X-3953-390-2	CABINET (R) ASSY
307	3-082-536-01	CLAW, PANEL LOCK
308	3-082-519-01	FOOT (R), RUBBER
309	3-969-387-01	FOOT, RUBBER
310	1-962-115-11	HARNESS (PB-052)
311	3-082-535-01	COVER (BACK), HINGE
312	X-3953-359-1	HINGE ASSY, LCD
313	3-082-534-01	COVER (FRONT), HINGE
314	3-989-735-31	SCREW (M1.7), LOCK ACE, P2
315	A-7016-626-A	FP-697 BOARD, COMPLETE
LCD901	8-753-052-41	ACX500DMM-1
ND901	1-477-759-11	BLOCK LIGHT GUIDE PLATE (2.5)

COVER

5. REPAIR PARTS LIST

5-1-8. MECHANISM DECK OVERALL (Z100)



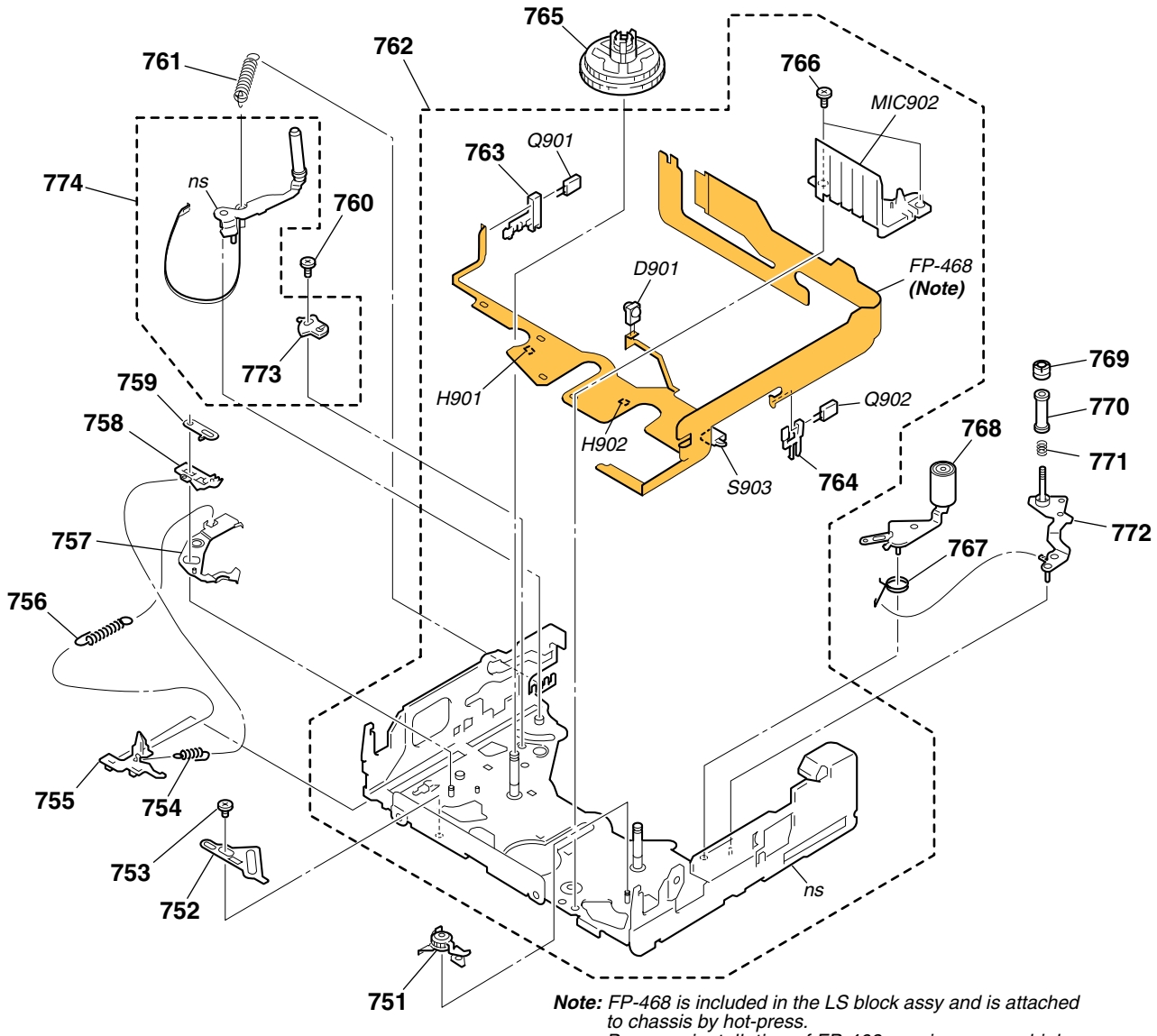
Ref. No.	Part No.	Description
701	X-3952-938-3	GEAR ASSY, GOOSENECK
702	3-075-097-11	SCREW (M1.4X1.4), SPECIAL HEAD
703	3-079-206-02	SPRING (POP UP S), TXTENSION
704	X-3952-939-4	COMPARTMENT ASSY, CASSETTE
705	3-079-367-01	DAMPER, CASSETTE COMPARTMENT
706	3-079-215-02	SPRING (POP UP T), EXTENSION
707	3-703-816-15	SCREW (M1.4), SPECIAL HEAD
708	3-080-545-01	COVER, SENSOR S
709	3-079-364-01	RETAINER, LS GUIDE
710	X-3952-937-1	TABLE ASSY, T REEL
711	3-079-366-01	RELEASE, REEL LOCK
712	X-3953-257-1	PLATE ASSY,RETAINER
713	A-7095-393-A	MD (Z100) SUB ASSY
714	3-079-741-02	SCREW,DRUM FIXING
715	3-748-682-01	WASHER, T
M901	A-7048-981-A	DRUM BLOCK ASSY (DEH-30A-R) (SERVICE)

COVER

5. REPAIR PARTS LIST

5-1-9. LS CHASSIS BLOCK ASSEMBLY

ns : not supplied



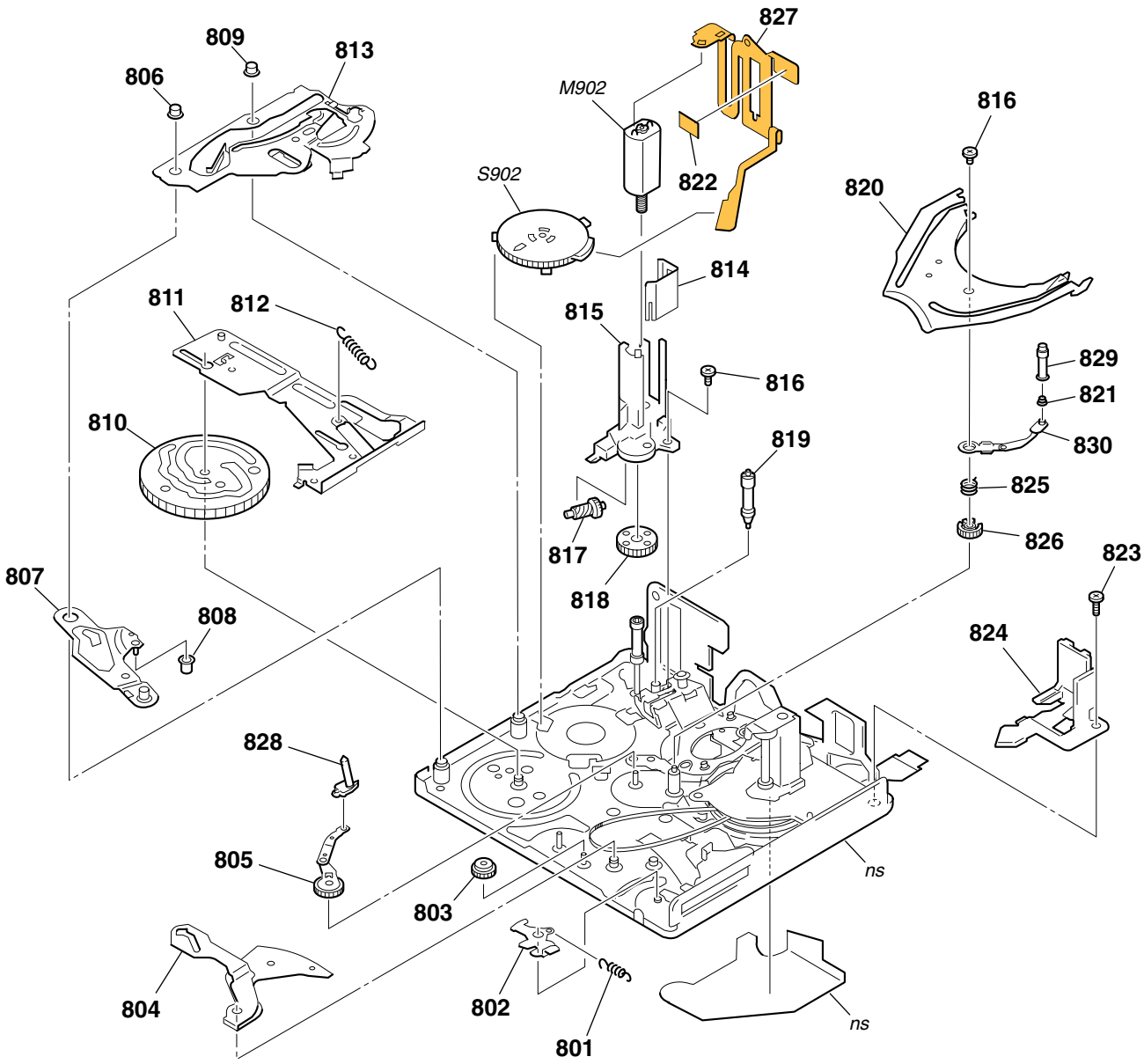
Note: *FP-468 is included in the LS block assy and is attached to chassis by hot-press.*
Because installation of FP-468 requires a very high accuracy, FP-468 is not supplied as an independent service parts.

Ref. No.	Part No.	Description
751	A-7095-402-B	BRAKE (T) BLOCK ASSY
752	3-079-241-01	PLATE, LS CAM
753	3-075-097-11	SCREW (M1.4X1.4), SPECIAL HEAD
754	3-079-246-01	SPRING(RELEASE RACK),EXTENSION
755	3-079-248-01	POSITIONING(S), CASSETTE
756	3-079-244-01	SPRING (ULE), EXTENSION
757	X-3952-932-1	BRAKE ASSY, ULE
758	3-079-245-01	RACK (S), RELEASE
759	3-079-247-01	BRAKE (S)
760	3-059-090-11	SCREW (M1.4X2.5), SPECIAL HEAD
761	3-079-242-01	SPRING, TENSION
762	A-7095-401-A	LS BLOCK ASSY
763	3-079-267-01	HOLDER (S), SENSOR
764	3-079-268-01	HOLDER (T), SENSOR
765	X-3952-936-2	TABLE ASSY, S REEL
766	3-703-816-15	SCREW (M1.4), SPECIAL HEAD

Ref. No.	Part No.	Description
767	3-079-243-02	SPRING (PINCH RETURN), TORSION
768	X-3952-934-1	ARM ASSY, PINCH
769	3-052-062-02	NUT, TG7
770	3-079-219-02	TG7
771	3-081-591-01	SPRING, COMPRESSION (TG7)
772	X-3952-935-3	ARM ASSY, TG7
773	3-079-237-02	ADJUSTOR, BAND
774	A-7095-403-D	TG2 ARM BLOCK ASSY
D901	6-500-652-01	DIODE GL453SE0000F (TAPE LED)
H901	8-719-067-74	ELEMENT, HOLE HW-105A-CDE-T (S REEL)
H902	8-719-067-74	ELEMENT, HOLE HW-105A-CDE-T (T REEL)
MIC902	1-817-175-12	PIN, CONNECTOR (WITH DETECTION SWITCH)
S903	1-529-566-51	SWITCH, PUSH (1 KEY) (C.C.DOWN)
Q901	6-550-402-01	TRANSISTOR PT4850FE000F (TAPE END)
Q902	6-550-402-01	TRANSISTOR PT4850FE000F (TAPE TOP)

5-1-10. MECHANICAL CHASSIS BLOCK ASSEMBLY

ns : not supplied



Ref. No.	Part No.	Description
801	3-079-314-01	SPRING (EJ), EXTENSION
802	3-079-327-01	ARM, EJ
803	3-079-323-01	GEAR, CONVERSION
804	3-079-324-03	ARM, GL DRIVING
805	X-3952-928-1	GL (S) ASSY
806	3-079-315-01	ROLLER (S1), LS GUIDE
807	X-3952-925-1	ARM ASSY, LS
808	3-079-320-01	ROLLER, LS
809	3-079-316-01	ROLLER (S2), LS GUIDE
810	3-079-319-01	GEAR, CAM
811	X-3952-941-1	SLIDER ASSY, M
812	3-079-321-02	SPRING (PINCH), EXTENSION
813	X-3952-940-2	PLATE ASSY, TG2 CAM
814	3-079-312-01	SHIELD, MOTOR
815	3-079-307-01	HOLDER, MOTOR
816	3-703-816-15	SCREW (M1.4), SPECIAL HEAD

Ref. No.	Part No.	Description
817	3-079-308-01	SHAFT, WORM
818	3-079-309-01	GEAR, DECELERATION
819	X-3952-942-2	ROLLER ASSY, TG3
820	3-079-325-01	RAIL, GUIDE
821	3-079-295-02	SPRING, TG5
822	1-677-049-11	FP-228 FLEXIBLE BOARD (DEW SENSOR)
823	3-079-328-01	SCREW ,SPECIAL
824	3-079-326-02	SUPPORT, TG7
825	3-079-301-01	SPRING (GLT), TORSION
826	3-079-298-01	GEAR (T), GL
827	1-686-798-11	PFP-467 FLEXIBLE BOARD
828	X-3952-927-2	COASTER (S) ASSY
829	X-3952-930-3	ROLLER ASSY, TG5
830	X-3952-929-5	COASTER (T) ASSY
M902	A-7095-396-A	MOTOR BLOCK ASSY, L (LOADONG)
S902	1-477-679-11	ROTARY, ENCODER (MODE SWITCH)

5-2. ELECTRICAL PARTS LIST

Ref. No.	Part No.	Description			
	A-7016-629-A	BJ-004 BOARD, COMPLETE			
		**********			
		< BATTERY >			
BT5801	1-694-990-11	BATTERY TERMINAL BOARD			
		< CAPACITOR >			
C5800	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C5801	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
		< CONNECTOR >			
CN5800	1-816-873-11	CONNECTOR BOARD TO BOARD 60P			
CN5801	1-794-276-11	CONNECTOR, SQUARE TYPE 4P			
CN5802	1-794-962-11	CONNECTOR, SQUARE TYPE(USB 5P)			
CN5803	1-794-997-11	PIN, CONNECTOR 20P			
CN5804	1-816-654-11	FFC/FPC CONNECTOR (LIF) 6P			
		< DIODE >			
D5800	6-500-289-01	DIODE MAZW082H0LS0			
D5804	8-719-078-02	DIODE 1SS357(T3SONY1)			
D5805	6-500-507-01	DIODE TLAV1021(T15SOY,F)			
		< JACK >			
J5801	1-817-361-11	DC-IN CONNECTOR			
		< LINE FILTER >			
LF5800	1-411-957-11	FILTER, COMMON MODE			
LF5801	1-428-914-11	INDUCTOR	0uH		
LF5802	1-428-914-11	INDUCTOR	0uH		
		< RESISTOR >			
R5800	1-218-953-11	RES-CHIP	1K	5%	1/16W
R5803	1-218-977-11	RES-CHIP	100K	5%	1/16W
R5804	1-218-979-11	RES-CHIP	150K	5%	1/16W
R5805	1-218-949-11	RES-CHIP	470	5%	1/16W
R5807	1-218-949-11	RES-CHIP	470	5%	1/16W
R5808	1-218-954-11	RES-CHIP	1.2K	5%	1/16W
		< SWITCH >			
S5801	1-771-138-82	SWITCH, KEY BOARD (DISPLAY/BATT INFO)			
S5802	1-771-138-82	SWITCH, KEY BOARD (BACK LIGHT)			
	A-7016-628-A	CD-444 BOARD, COMPLETE			
		**********			
		(IC5101 is not included in this complete board.)			
		< CAPACITOR >			
C5101	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C5102	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C5104	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C5105	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C5108	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C5109	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C5110	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C5111	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C5112	1-117-919-11	TANTAL. CHIP	10uF	20%	6.3V
C5113	1-113-987-11	TANTAL. CHIP	4.7uF	20%	25V
C5114	1-137-704-91	TANTAL. CHIP	10uF	20%	10V
C5115	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C5203	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C5204	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C5205	1-127-895-91	TANTAL. CHIP	22uF	20%	4V
C5206	1-127-895-91	TANTAL. CHIP	22uF	20%	4V
C5207	1-119-923-11	CERAMIC CHIP	0.047uF	10%	10V
C5208	1-119-923-11	CERAMIC CHIP	0.047uF	10%	10V
C5209	1-119-923-11	CERAMIC CHIP	0.047uF	10%	10V
C5210	1-137-710-11	CERAMIC CHIP	10uF	20%	6.3V
C5211	1-137-710-11	CERAMIC CHIP	10uF	20%	6.3V
C5212	1-119-923-11	CERAMIC CHIP	0.047uF	10%	10V
C5213	1-137-710-11	CERAMIC CHIP	10uF	20%	6.3V
C5214	1-137-710-11	CERAMIC CHIP	10uF	20%	6.3V
C5216	1-127-760-11	CERAMIC CHIP	4.7uF	10%	6.3V
		< CONNECTOR >			
CN5001	1-816-924-11	CONNECTOR BOARD TO BOARD 40P			
CN5003	1-816-654-11	FFC/FPC CONNECTOR (LIF) 6P			
		< FERRITE BEAD >			
FB5101	1-414-445-11	FERRITE	0uH		
		< IC >			
IC5101	A-7031-367-A	CCD BLOCK ASSY (CCD IMAGER)			
IC5102	6-701-755-01	IC AD80017AJRURL			
IC5201	8-759-489-19	IC uPC6756GR-8JG-E2			
		< COIL >			
L5101	1-414-757-11	INDUCTOR	100uH		
L5102	1-469-525-91	INDUCTOR	10uH		
L5201	1-469-570-11	INDUCTOR	10uH		
		< TRANSISTOR >			
Q5101	8-729-037-74	TRANSISTOR	UN9213J-(TX).SO		
		< RESISTOR >			
R5001	1-218-947-11	RES-CHIP	330	5%	1/16W
R5101	1-218-990-11	SHORT CHIP	0		
R5102	1-218-990-11	SHORT CHIP	0		
R5201	1-218-990-11	SHORT CHIP	0		
R5202	1-218-990-11	SHORT CHIP	0		
R5203	1-218-990-11	SHORT CHIP	0		
R5204	1-218-990-11	SHORT CHIP	0		
R5205	1-218-990-11	SHORT CHIP	0		
R5206	1-218-990-11	SHORT CHIP	0		
R5207	1-218-969-11	RES-CHIP	22K	5%	1/16W
R5208	1-218-969-11	RES-CHIP	22K	5%	1/16W
R5210	1-218-969-11	RES-CHIP	22K	5%	1/16W
R5211	1-218-969-11	RES-CHIP	22K	5%	1/16W
R5212	1-218-989-11	RES-CHIP	1M	5%	1/16W
R5213	1-218-965-11	RES-CHIP	10K	5%	1/16W
R5214	1-218-965-11	RES-CHIP	10K	5%	1/16W
R5215	1-218-989-11	RES-CHIP	1M	5%	1/16W

Be sure to read “Precautions upon replacing CCD imager” on page 4-8 when changing the CCD imager.

CD-444 **FP-672** **VC-319**

Ref. No.	Part No.	Description
		< SENSOR >
SE5201	1-476-807-31	SENSOR, ANGULAR VELOCITY (YAW SENSOR)
SE5202	1-476-807-41	SENSOR, ANGULAR VELOCITY (PITCH SENSOR)
	A-7016-616-A	FP-672 BOARD, COMPLETE
		**********
		< PHOTO INTERRUPTER >
PH001	8-749-016-83	IC GP1S092HCPI
PH002	8-749-016-83	IC GP1S092HCPI
	A-7016-987-A	VC-319A BOARD, COMPLETE (PC105)(SERVICE)
	A-7016-988-A	VC-319B BOARD, COMPLETE (PC104E,PC105E)(SERVICE)
	A-7016-989-A	VC-319C BOARD, COMPLETE (PC103E)(SERVICE)
		**********

Electrical parts list of the VC-319 board are not shown.
Pages from 5-15 to 5-23 are not shown.

FP-697 **LI-070** **NS-018** **PD-193**

Ref. No.	Part No.	Description			
	A-7016-626-A	FP-697 BOARD, COMPLETE			
		**********			
		< SWITCH >			
S001	1-762-805-21	SWITCH, PUSH (1 KEY) (PANEL OPEN/CLOSE)			
S002	1-786-179-31	SWITCH, PUSH (1KEY) (PANEL NORMAL/REVERSE)			
	A-7016-632-A	LI-070 BOARD, COMPLETE			
		**********			
		< BATTERY >			
⚠BT6401	1-756-128-11	BATTERY, LITHIUM (SECONDARY)			
		< CONNECTOR >			
CN6401	1-816-654-11	FFC/FPC CONNECTOR (LIF) 6P			
	A-7016-623-A	NS-018 BOARD, COMPLETE			
		**********			
		< CAPACITOR >			
C6300	1-127-760-11	CERAMIC CHIP	4.7uF	10%	6.3V
C6301	1-127-760-11	CERAMIC CHIP	4.7uF	10%	6.3V
		< DIODE >			
D6300	8-719-073-01	DIODE MA111-(K8).S0			
D6301	8-719-064-07	DIODE SML-310LTT86			
D6302	6-500-512-01	DIODE CL-330IRS-X-TU			
		< IC >			
IC6300	8-742-221-00	HYB IC SBX3055-01			
		< TRANSISTOR >			
Q6300	6-550-235-01	TRANSISTOR	DTC114TMT2L		
Q6301	8-729-049-92	TRANSISTOR	2SC5585H-T2L		
		< RESISTOR >			
R6300	1-216-805-11	METAL CHIP	47	5%	1/16W
R6302	1-218-951-11	RES-CHIP	680	5%	1/16W
R6303	1-216-609-11	METAL CHIP	18	0.5%	1/10W
R6304	1-216-609-11	METAL CHIP	18	0.5%	1/10W
R6305	1-218-939-11	RES-CHIP	68	5%	1/16W
R6306	1-218-959-11	RES-CHIP	3.3K	5%	1/16W
	A-7016-624-A	PD-193 BOARD, COMPLETE			
		**********			
		< CAPACITOR >			
C600	1-110-569-21	TANTAL. CHIP	47uF	20%	4V
C601	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C602	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C603	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C604	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C605	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C606	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C609	1-135-213-21	TANTAL. CHIP	3.3uF	20%	25V
C610	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C611	1-164-739-11	CERAMIC CHIP	560PF	5%	50V
C615	1-115-566-11	CERAMIC CHIP	4.7uF	10%	10V
C616	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C617	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C618	1-165-908-11	CERAMIC CHIP	1uF	10%	10V
C619	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C620	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C622	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C624	1-164-939-11	CERAMIC CHIP	0.0022uF	10%	50V
C625	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C628	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C629	1-135-213-21	TANTAL. CHIP	3.3uF	20%	25V
		< CONNECTOR >			
CN600	1-794-997-11	PIN, CONNECTOR 20P			
CN602	1-691-344-11	CONNECTOR, FFC/FPC (ZIF) 6P			
CN604	1-785-905-11	CONNECTOR, FFC/FPC (ZIF) 24P			
CN606	1-691-344-11	CONNECTOR, FFC/FPC (ZIF) 6P			
		< DIODE >			
D604	8-719-050-42	DIODE RD3.3UM-T1B			
D605	8-719-073-01	DIODE MA111-(K8).S0			
		< FERRITE BEAD >			
FB600	1-414-760-21	FERRITE	0uH		
		< IC >			
IC600	8-752-109-97	IC CXA3622AR-T4			
IC601	8-759-581-11	IC NJM2125F(TE2)			
		< COIL >			
L600	1-469-525-91	INDUCTOR	10uH		
L601	1-469-570-11	INDUCTOR	10uH		
		< TRANSISTOR >			
Q603	8-759-054-48	TRANSISTOR	UP04601008S0		
Q604	8-759-054-48	TRANSISTOR	UP04601008S0		
Q605	8-729-041-23	TRANSISTOR	NDS356AP		
Q606	8-729-427-12	TRANSISTOR	XP4111-TXE		
Q607	8-729-427-42	TRANSISTOR	XP4211-TXE		
Q609	8-729-050-24	TRANSISTOR	MCH6202-TL		
Q610	8-729-042-26	TRANSISTOR	2SB1462J-QR(K8).SO		
Q611	8-729-037-52	TRANSISTOR	2SC4738F-Y/GR(TPL3)		
		< RESISTOR >			
R602	1-218-949-11	RES-CHIP	470	5%	1/16W
R605	1-218-990-11	SHORT CHIP	0		
R606	1-218-990-11	SHORT CHIP	0		
R608	1-218-975-11	RES-CHIP	68K	5%	1/16W
R611	1-208-707-11	METAL CHIP	10K	0.5%	1/16W

CAUTION :
Danger of explosion if battery is incorrectly replaced.
Replace only with the same or equivalent type.

Note :
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Note :
Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

Ref. No.	Part No.	Description			
R612	1-208-935-11	METAL CHIP	100K	0.5%	1/16W
R614	1-208-635-11	RES-CHIP	10	5%	1/16W
R615	1-208-635-11	RES-CHIP	10	5%	1/16W
R616	1-208-635-11	RES-CHIP	10	5%	1/16W
R617	1-208-635-11	RES-CHIP	10	5%	1/16W
R618	1-218-965-11	RES-CHIP	10K	5%	1/16W
R619	1-218-990-11	SHORT CHIP	0		
R620	1-218-977-11	RES-CHIP	100K	5%	1/16W
R621	1-218-965-11	RES-CHIP	10K	5%	1/16W
R622	1-216-847-11	METAL CHIP	150K	5%	1/16W
R631	1-208-935-11	METAL CHIP	100K	0.5%	1/16W
R633	1-218-990-11	SHORT CHIP	0		
R634	1-211-977-11	METAL CHIP	22	0.5%	1/10W
R635	1-218-955-11	RES-CHIP	1.5K	5%	1/16W
R636	1-208-719-11	METAL CHIP	33K	0.5%	1/16W
R637	1-218-957-11	RES-CHIP	2.2K	5%	1/16W
R638	1-218-990-11	SHORT CHIP	0		
R641	1-218-977-11	RES-CHIP	100K	5%	1/16W
R642	1-218-989-11	RES-CHIP	1M	5%	1/16W
R643	1-218-990-11	SHORT CHIP	0		

	A-7016-619-A	ST-084 BOARD, COMPLETE (PC105/PC105E)			
	**********				
		< CAPACITOR >			
C6600	1-119-751-11	TANTAL. CHIP	22uF	20%	16V
C6601	1-115-566-11	CERAMIC CHIP	4.7uF	10%	10V
C6602	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C6603	1-109-982-11	CERAMIC CHIP	1uF	10%	10V
C6604	1-119-923-11	CERAMIC CHIP	0.047uF	10%	10V
C6605	1-109-982-11	CERAMIC CHIP	1uF	10%	10V
⚠C6606	1-100-454-11	ELECT	60uF	99%	310V
		< CONNECTOR >			
CN6601	1-815-331-11	CONNECTOR, FPC (ZIF) 19P			
		< DIODE >			
D6600	8-719-073-01	DIODE MA111-(K8).SO			
D6601	8-719-073-01	DIODE MA111-(K8).SO			
⚠D6602	6-500-237-01	DIODE HAU160C030TP			
		< COIL >			
L6600	1-412-027-11	INDUCTOR	2.2uH		
		< TRANSISTOR >			
Q6600	8-729-042-72	TRANSISTOR	UN9214J-(K8).SO		
Q6601	8-729-013-31	TRANSISTOR	2SA1588-OY-TE85L		
Q6602	8-729-037-74	TRANSISTOR	UN9213J-(K8).SO		
Q6603	8-729-048-75	TRANSISTOR	CPH3109-TL-E		
Q6604	8-729-048-75	TRANSISTOR	CPH3109-TL-E		
Q6605	6-550-238-01	TRANSISTOR	DTA114EMT2L		
Q6606	8-729-426-24	TRANSISTOR	XP1211-TXE		
Q6607	6-550-237-01	TRANSISTOR	2SC5658T2LQ/R		
Q6608	8-729-426-24	TRANSISTOR	XP1211-TXE		
Q6609	8-729-053-74	TRANSISTOR	GT8G132(TE12L)		

Ref. No.	Part No.	Description			
		< RESISTOR >			
R6600	1-218-947-11	RES-CHIP	330	5%	1/16W
R6601	1-218-965-11	RES-CHIP	10K	5%	1/16W
R6602	1-218-990-11	SHORT CHIP	0		
R6604	1-218-961-11	RES-CHIP	4.7K	5%	1/16W
R6605	1-218-977-11	RES-CHIP	100K	5%	1/16W
R6606	1-218-941-81	RES-CHIP	100	5%	1/16W
R6607	1-218-937-11	RES-CHIP	47	5%	1/16W
R6608	1-218-969-11	RES-CHIP	22K	5%	1/16W
R6609	1-218-948-11	RES-CHIP	390	5%	1/16W
R6610	1-218-962-11	RES-CHIP	5.6K	5%	1/16W
R6612	1-218-953-11	RES-CHIP	1K	5%	1/16W
R6613	1-218-943-11	RES-CHIP	150	5%	1/16W
R6614	1-218-961-11	RES-CHIP	4.7K	5%	1/16W
R6615	1-218-937-11	RES-CHIP	47	5%	1/16W
R6616	1-218-989-11	RES-CHIP	1M	5%	1/16W
		< TRANSFORMER >			
⚠T6600	1-437-532-11	TRANSFORMER, DC-DC CONVERTER			
		< TEST PIN >			
TP6600	1-535-757-11	CHIP, CHECKER			

	A-7016-614-A	VF-156 BOARD, COMPLETE			
	**********				
		< CAPACITOR >			
C5301	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C5302	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C5401	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C5501	1-107-819-11	CERAMIC CHIP	0.022uF	10%	16V
C5502	1-164-941-11	CERAMIC CHIP	0.0047uF	10%	16V
C5503	1-107-819-11	CERAMIC CHIP	0.022uF	10%	16V
C5504	1-164-941-11	CERAMIC CHIP	0.0047uF	10%	16V
C5505	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C5506	1-117-919-11	TANTAL. CHIP	10uF	20%	6.3V
C5510	1-164-937-11	CERAMIC CHIP	0.001uF	10%	50V
C5511	1-117-919-11	TANTAL. CHIP	10uF	20%	6.3V
C5512	1-164-874-11	CERAMIC CHIP	100PF	5%	50V
C5513	1-164-874-11	CERAMIC CHIP	100PF	5%	50V
C5514	1-164-937-11	CERAMIC CHIP	0.001uF	10%	50V
C5516	1-164-874-11	CERAMIC CHIP	100PF	5%	50V
C5517	1-164-874-11	CERAMIC CHIP	100PF	5%	50V
C5519	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C5520	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C5521	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C5523	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C5525	1-119-923-11	CERAMIC CHIP	0.047uF	10%	10V
C5526	1-119-923-11	CERAMIC CHIP	0.047uF	10%	10V
C5527	1-127-988-81	CERAMIC CHIP	15000PF	10%	16V
C5528	1-164-939-11	CERAMIC CHIP	0.0022uF	10%	50V
C5529	1-164-939-11	CERAMIC CHIP	0.0022uF	10%	50V

Note :
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Note :
Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

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Ref. No.	Part No.	Description			
C5530	1-127-988-81	CERAMIC CHIP	15000PF	10%	16V
C5534	1-127-760-11	CERAMIC CHIP	4.7uF	10%	6.3V
C5535	1-119-923-11	CERAMIC CHIP	0.047uF	10%	10V
C5537	1-119-923-11	CERAMIC CHIP	0.047uF	10%	10V
C5539	1-127-895-91	TANTAL. CHIP	22uF	20%	4V
C5601	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C5602	1-164-505-11	CERAMIC CHIP	2.2uF		16V
		< CONNECTOR >			
CN5301	1-816-873-11	CONNECTOR BOARD TO BOARD 60P			
CN5302	1-794-767-31	FFC/FPC CONNECTOR (LIF) 10P			
CN5303	1-816-654-11	FFC/FPC CONNECTOR (LIF) 6P			
CN5405	1-815-794-21	CONNECTOR (MULTIPLE)			
CN5602	1-691-354-21	CONNECTOR, FFC/FPC (ZIF) 16P			
		< DIODE >			
D5301	6-500-289-01	DIODE MAZW082H0LS0			
D5302	6-500-289-01	DIODE MAZW082H0LS0			
D5407	6-500-289-01	DIODE MAZW082H0LS0			
D5408	6-500-289-01	DIODE MAZW082H0LS0			
D5601	6-500-371-01	DIODE NSCW215T-TC5			
D5602	6-500-371-01	DIODE NSCW215T-TC5			
		< FERRITE BEAD >			
FB5301	1-414-760-21	FERRITE	0uH		
FB5302	1-414-760-21	FERRITE	0uH		
FB5303	1-414-760-21	FERRITE	0uH		
FB5405	1-414-760-21	FERRITE	0uH		
FB5406	1-414-760-21	FERRITE	0uH		
FB5408	1-414-760-21	FERRITE	0uH		
FB5409	1-414-760-21	FERRITE	0uH		
FB5410	1-414-760-21	FERRITE	0uH		
FB5411	1-414-760-21	FERRITE	0uH		
FB5412	1-414-760-21	FERRITE	0uH		
FB5413	1-414-760-21	FERRITE	0uH		
FB5414	1-414-760-21	FERRITE	0uH		
		< IC >			
IC5501	8-759-679-11	IC BH7870AKV-E2			
IC5601	8-759-581-11	IC NJM2125F(TE2)			
		< JACK >			
J5402	1-793-995-11	JACK, SUPER SMALL TYPE (LANC)			
J5403	1-691-737-41	JACK (SMALL TYPE) (MIC(PLUG IN POWER)			
		< COIL >			
L5501	1-469-528-91	INDUCTOR	100uH		
		< TRANSISTOR >			
Q5601	6-550-119-01	TRANSISTOR	DTC144EMT2L		
Q5602	8-729-427-83	TRANSISTOR	XP6501-(TX).SO		
Q5603	8-729-042-26	TRANSISTOR	2SB1462J-QR(K8).SO		

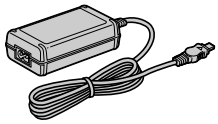
Ref. No.	Part No.	Description			
		< RESISTOR >			
R5411	1-218-990-11	SHORT CHIP	0		
R5501	1-218-957-11	RES-CHIP	2.2K	5%	1/16W
R5502	1-218-958-11	RES-CHIP	2.7K	5%	1/16W
R5503	1-218-965-11	RES-CHIP	10K	5%	1/16W
R5504	1-218-961-11	RES-CHIP	4.7K	5%	1/16W
R5505	1-218-990-11	SHORT CHIP	0		
R5506	1-218-957-11	RES-CHIP	2.2K	5%	1/16W
R5507	1-218-957-11	RES-CHIP	2.2K	5%	1/16W
R5508	1-218-963-11	RES-CHIP	6.8K	5%	1/16W
R5509	1-218-963-11	RES-CHIP	6.8K	5%	1/16W
R5510	1-218-953-11	RES-CHIP	1K	5%	1/16W
R5511	1-218-953-11	RES-CHIP	1K	5%	1/16W
R5515	1-218-967-11	RES-CHIP	15K	5%	1/16W
R5517	1-218-967-11	RES-CHIP	15K	5%	1/16W
R5518	1-218-970-11	RES-CHIP	27K	5%	1/16W
R5519	1-218-970-11	RES-CHIP	27K	5%	1/16W
R5520	1-218-966-11	RES-CHIP	12K	5%	1/16W
R5521	1-218-966-11	RES-CHIP	12K	5%	1/16W
R5522	1-218-990-11	SHORT CHIP	0		
R5523	1-218-990-11	SHORT CHIP	0		
R5524	1-218-977-11	RES-CHIP	100K	5%	1/16W
R5525	1-218-966-11	RES-CHIP	12K	5%	1/16W
R5527	1-218-959-11	RES-CHIP	3.3K	5%	1/16W
R5530	1-218-990-11	SHORT CHIP	0		
R5531	1-218-990-11	SHORT CHIP	0		
R5532	1-218-990-11	SHORT CHIP	0		
R5604	1-208-909-11	METAL CHIP	8.2K	0.5%	1/16W
R5605	1-218-956-11	RES-CHIP	1.8K	5%	1/16W
R5607	1-208-643-11	METAL CHIP	22	0.5%	1/16W
R5609	1-208-643-11	METAL CHIP	22	0.5%	1/16W
R5610	1-208-943-11	METAL CHIP	220K	0.5%	1/16W
R5611	1-208-677-11	METAL CHIP	560	0.5%	1/16W
R5612	1-208-707-11	METAL CHIP	10K	0.5%	1/16W
		< VARISTOR >			
VD5401	1-801-862-11	VARISTOR, CHIP	(1608)		
VD5402	1-801-862-11	VARISTOR, CHIP	(1608)		
VD5403	1-803-974-21	VARISTOR, CHIP	(1608)		
VD5404	1-803-974-21	VARISTOR, CHIP	(1608)		
VD5405	1-803-974-21	VARISTOR, CHIP	(1608)		
VD5406	1-803-974-21	VARISTOR, CHIP	(1608)		
VD5407	1-803-974-21	VARISTOR, CHIP	(1608)		
VD5408	1-803-974-21	VARISTOR, CHIP	(1608)		

Checking supplied accessories.

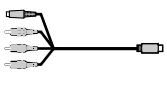
Make sure that the following accessories are supplied with your camcorder.

Power cord (Main lead)(1)
(PC105:US,CND)
⚠ 1-790-107-22
Power cord (Main lead)(1)
(PC105E:AUS)
⚠ 1-696-819-21
Power cord (Main lead)(1)
(PC103E:AEP,EE/PC104E:E/
PC105:E/PC105E:AEP,EE,E)
⚠ 1-769-608-11
Power cord (Main lead)(1)
(PC105:KR)
⚠ 1-776-985-11
Power cord (Main lead)(1)
(PC104E:CH/PC105E:CH)
⚠ 1-782-476-13
Power cord (Main lead)(1)
(PC103E:UK/PC104E:HK/
PC105:HK/PC105E:UK,HK)
⚠ 1-783-374-11
Power cord (Main lead)(1)
(PC105:JE/PC105E:JE)
⚠ 1-790-732-12

CD-ROM
(SPVD-010 USB Driver) (1)
(PC103E/PC104E/PC105:
E,HK,JE,KR/PC105E)
3-078-942-03
CD-ROM
(SPVD-010 (I) USB Driver) (1)
(PC105:US,CND)
3-078-943-03



AC power adaptor (1)
(AC-L15A/L15B)
(EXCEPT PC104E:CH/
PC105E:CH)
⚠ 1-477-533-31
(PC104E:CH/PC105E:CH)
⚠ 1-477-533-41

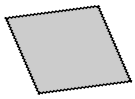


A/V connecting cable
(AV multi)
(1.5m) (1)
1-823-156-12

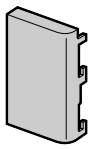
"Memory Stick" (1)
(MSA-8A)
A-7024-735-A
(DCR-PC105/
PC105E only)

21-pin adaptor (1)
(PC103E/PC105E:
AEP,UK,EE only)
1-770-783-21

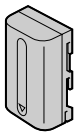
USB cable (1)
1-823-931-11



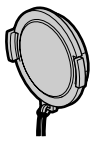
Cleaning cloth (1)
3-073-861-01



Battery terminal
cover (1)
3-082-552-01

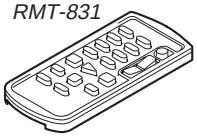


NP-FM30 battery
pack (BLUE) (1)
A-7095-528-A
(PC105:US,CND)
A-7095-529-A
(Except PC105:US,CND)



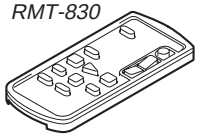
Lens cap (1)
X-3953-477-1

RMT-831



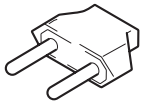
Battery Holder
(SERVICE)
3-083-973-01

RMT-830

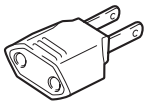


Battery Holder
(SERVICE)
3-083-973-01

Wireless Remote Commander (1)
(DCR-PC105/PC105E)
(RMT-831)
1-477-898-41
(DCR-PC103E/PC104E)
(RMT-830)
1-477-898-71



2-pin conversion adaptor (1)
(PC105:JE/PC105E:JE only)
1-569-007-12



2-pin conversion adaptor (1)
(PC104E:E,HK/
PC105:E,HK/PC105E:E,HK)
1-569-008-12

- Abbreviation

CND	: Canadian model	KR	: Korea model
AUS	: Australian model	HK	: Hong Kong model
CH	: Chinese model	JE	: Tourist model
EE	: East European model		

Other accessories

3-081-602-11 MANUAL, INSTRUCTION(ENGLISH) (PC105:US,CND,E,HK,JE)
3-081-602-21 MANUAL, INSTRUCTION (FRENCH)(PC105:CND)
3-081-602-31 MANUAL, INSTRUCTION (SPANISH/PORTUGUESE) (PC105:E,JE)
3-081-602-41 MANUAL, INSTRUCTION (TRADITIONAL CHINESE) (PC105:E,HK)
3-081-602-51 MANUAL, INSTRUCTION (KOREAN)(PC105:JE,KR)
3-081-602-61 MANUAL, INSTRUCTION (ARABIC)(PC105:E)
3-081-627-11 MANUAL, INSTRUCTION (ENGLISH/FRENCH) (PC103E:AEP,UK/PC104E/PC105E:AEP,UK,E,HK,AUS,CH,JE)
3-081-627-21 MANUAL, INSTRUCTION (SPANISH/PORTUGUESE) (PC103E:AEP/PC105E:AEP)
3-081-627-31 MANUAL, INSTRUCTION (ITALIAN/GREEK) (PC103E:AEP/PC105E:AEP)
3-081-627-41 MANUAL, INSTRUCTION (GERMAN/DUTCH) (PC103E:AEP/PC105E:AEP)
3-081-627-51 MANUAL, INSTRUCTION (RUSSIAN/SWEDISH) (PC104E:E/PC105E:E,JE)
3-081-627-61 MANUAL, INSTRUCTION (ARABIC/PERSIAN) (PC104E:E/PC105E:E)
3-081-627-71 MANUAL, INSTRUCTION (TRADITIONAL CHINESE) (PC104E:HK/PC105E:HK)
3-081-627-81 MANUAL, INSTRUCTION (SIMPLILIED CHINESE) (PC104E:E,CH/PC105E:E,CH,JE)

Note : The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	**Note :** Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

9-876-258-31

Sony EMCS Co.

2003D1600-1
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Published by DI Customer Center

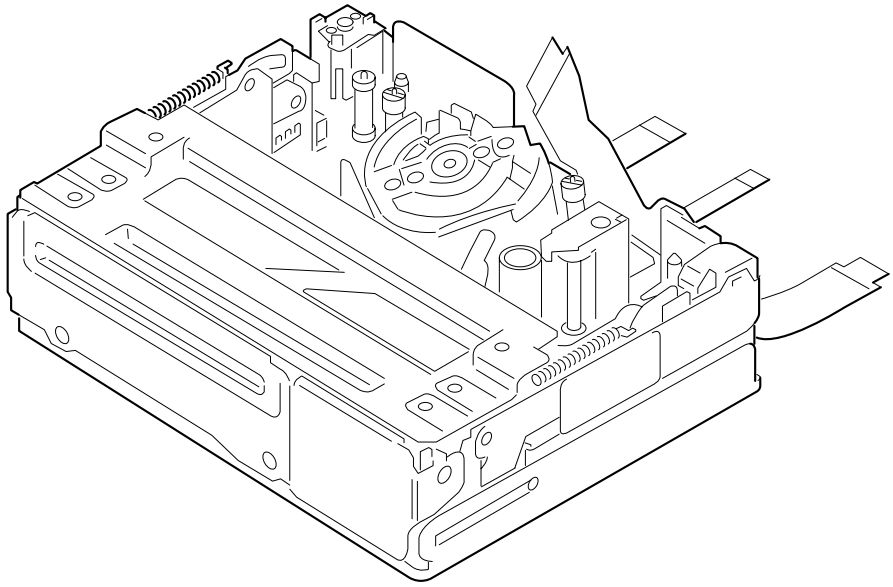
DV MECHANICAL ADJUSTMENT MANUAL VII

Ver 1.0 2003. 01

Z MECHANISM

Mini DV Digital Video Cassette

Please use this manual with the service manual of the respective models.



The capstan motor and the drum base block assy of this mechanism require very high precision work to install them in the mechanism. Therefore, the capstan motor and the drum base block assy are not supplied as the repair part independently. They are supplied as MD (Z100) SUB block assy.

Digital MECHANISM DECK

SONY

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1. Preparations for Check, Adjustment and Replacement of Mechanism Block

- Refer to the "DISASSEMBLY" section of the SERVICE MANUAL of the respective models for details of removing cabinets and printed wiring boards.
- When making any adjustment to a mechanism or replacing mechanical parts, be sure to use the Mode Selector II and select the appropriate status of the mechanical deck such that the mechanical status is suitable for the desired work. Refer to section "2-5. Mode Selector II" for details on how to enter the mode shown in a rectangle [____] mode in subsequent paragraphs of this manual.

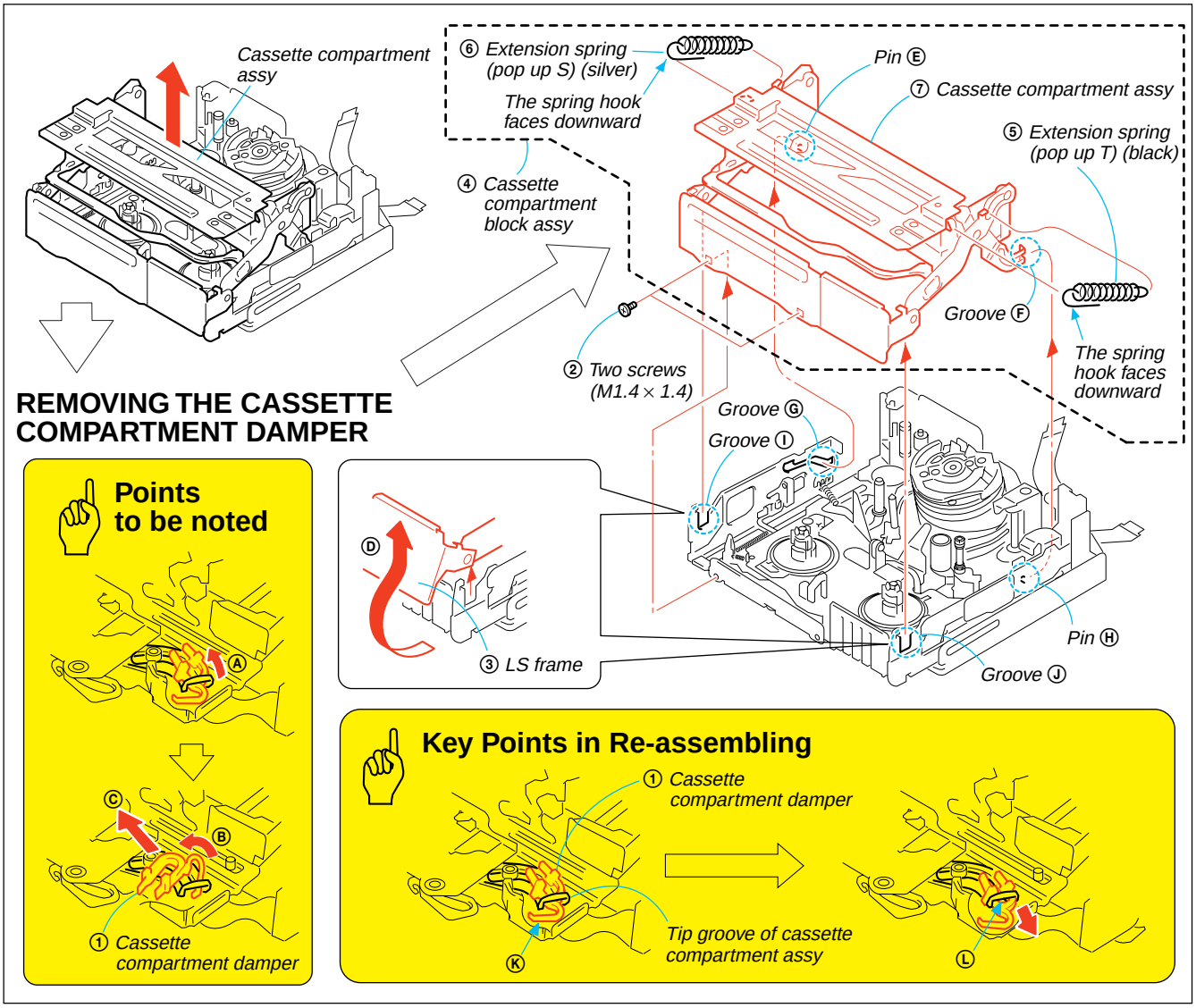
1-1. Cassette Compartment Assy, Damper Assy

1. Removal procedure

1) Set the [EJ] mode.
2) Press the cassette compartment down halfway. Pull the cassette compartment damper ① in the direction of the arrow Ⓐ. Then rotate it in the Ⓑ direction, and remove it in the direction of Ⓒ.
3) Remove the two screws (special head screw M1.4 × 1.4) ②.
4) Remove the LS chassis block assy ③ in the direction of the arrow Ⓓ.
5) Remove the pin Ⓔ and groove Ⓕ of the cassette compartment assy ④ from the LS chassis groove Ⓖ and pin Ⓗ. Then remove the cassette compartment block assy ④.
6) Remove the tension spring (POP UP T) (black) ⑤.
7) Remove the tension spring (POP UP S) (silver) ⑥.Then remove the cassette compartment assy ⑦.

2. Attachment procedure

1) Set the [ULE] mode.
2) Install the tension spring (cassette compartment S) (POP UP S) (silver) ⑥ in to the cassette compartment assy ⑦. (The spring should be hooked on the front stay with the spring end facing upward.)
3) Install the tension spring (cassette compartment T) (POP UP T) (black) ⑤ in to the cassette compartment assy ⑦. (The spring should be hooked on the front stay with the spring end facing upward.)
4) Install the pin Ⓔ and groove Ⓕ of the cassette compartment assy ④ into the LS chassis groove Ⓖ and pin Ⓗ.
5) In the status that the LS block assy ③ is kept open, insert it into the grooves Ⓘ and Ⓙ of the LS chassis block assy.
6) Close the LS chassis block assy ③ in the direction opposite to the arrow Ⓓ, and install it with the two screws (special head screw M1.4 × 1.4) ②.
   Tightening torque: 0.059 ± 0.01N•m (0.6 ± 0.1kgf•cm)
7) The cassette compartment down halfway. Pass the Ⓚ portion of the cassette compartment damper ① through the groove at the tip of the cassette compartment. Then pull the Ⓛ portion and fix it using tweezers or something.



2. Periodic Inspection and Maintenance

- Be sure to perform the following maintenance and inspection so that the machine delivers its full performance and functions, and to protect the machine and tape. Also, perform the following maintenance items after completing the repair work, regardless of the number of hours the machine has been operated by the user.

2-1. Rotary Drum Cleaning

1) Press a wiping cloth (Ref. No. J-2) moistened with cleaning fluid (Ref. No. J-1) lightly against the rotary drum. Rotate the upper drum with a super-fine applicator slowly in the counter-clockwise direction to clean the rotary drum.

Caution: Never rotate the rotary drum by turning on the main power of the motor or rotate it in the clockwise direction. Never move the cloth vertically against the head tip, as this will surely damage the video head; the video head must not be cleaned by any other different methods.

2-2. Tape Path System Cleaning (Refer to Fig. 2-1.)

1) Set the EJECT state. Clean the tape running path (TG-1, -2, -3, -4, -5, -6 and -7, pinch roller and capstan shaft) and lower drum with a super-fine applicator (Ref. J-3) moistened with cleaning fluid.

Note 1: Be careful not to allow oil or grease of the various link mechanisms to get on the super-fine applicator (Ref. J-3).
Note 2: Once the super-fine applicator has been moistened with alcohol, do not use it to clean other mechanical parts such as the tape guide. However, the pinch roller is cleaned with alcohol.
Note 3: When cleaning the capstan shaft, be carefull not to move the oil seal. If the oil seal is moved, oil will leak.

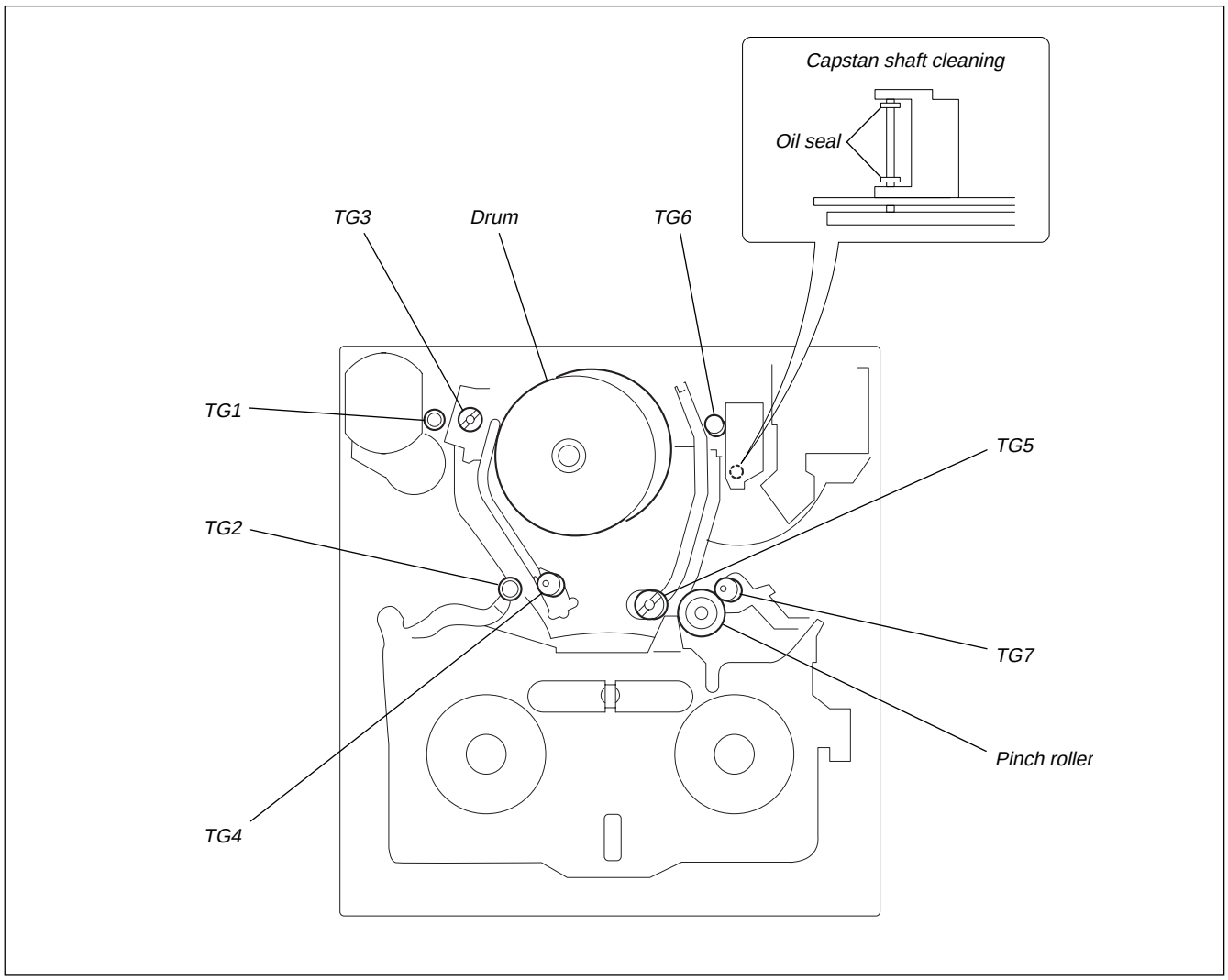


Fig. 2-1

2-3. Periodic Inspection List

Maintenance and inspection item		Operating hours (H)										Remarks
		500	1000	1500	2000	2500	3000	3500	4000	4500	5000	
	Tape running surface cleaning	○	○	○	○	○	○	○	○	○	○	Be careful not to attach oil
	Rotary drum cleaning and degaussing	○	○	○	○	○	○	○	○	○	○	Be careful not to attach oil
Drive mechanism	Capstan bearing	—	☆	—	☆	—	☆	—	☆	—	☆	
Drive mechanism	Loading motor	—	☆	—	☆	—	☆	—	☆	—	☆	
Performance check	Abnormal sound	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	
Performance check	Back-tension measurement	—	☆	—	☆	—	☆	—	☆	—	☆	
Performance check	Brake system	—	☆	—	☆	—	☆	—	☆	—	☆	
Performance check	Brake system	—	☆	—	☆	—	☆	—	☆	—	☆	
Performance check	FWD/RVS torque measurement	—	☆	—	☆	—	☆	—	☆	—	☆	

○: Cleaning, ☆: Check

Note 1: When the machine is overhauled, replace the parts referring to the above list.

Note 2: Grease

- Be sure to use the specified grease only. (If grease of different viscosity is used, it can cause various troubles.)
- The grease must not contain any dust or other matter. (otherwise it can cause various trouble.)
- Observe the noted amount of grease. (otherwise the oozed grease can cause troubles.)
- Suncall FG-87HSR

2-4. Service Jigs and Tools

Ref. No.	Name	Part code	Jig inscription	Used for
J-1	Cleaning fluid	Y-2031-001-0		
J-2	Wiping cloth	7-741-900-53		
J-3	Super-fine applicator (made by Nippon Applicator (P752D))	—		
J-4	Mirror (small oval type)	J-6080-840-A	GD-2038	Tape path
J-5	Tracking tape (XH2-1) (NTSC, PAL)	8-967-997-01		Tape path
J-6	Mini DV torque cassette	J-6082-360-A		
J-7	FWD/BACK T adjustment screwdriver	J-6082-187-A		For TG2 FWD position adjustment
J-8	Torque screwdriver	J-9049-330-A		
J-9	Tape path screwdriver	J-6082-026-A		For tape path adjustment
J-10	Adjustment remote commander (RM-95 upgraded)	J-6082-053-B		
J-11	Mode Selector II	J-6082-282-B		General adjustment (ROM version 1.8)
J-12	Mode Selector II conversion board (Z)	J-6082-493-A		
J-13	Mode Selector II ROM (supporting Z mechanism) * Note 1	J-6082-314-G		ROM for Mode Selector II

Other required equipment: Oscilloscope

Note 1: This is the ROM used for upgrading the version of Mode Selector II to enable it to be used for the Z mechanism.

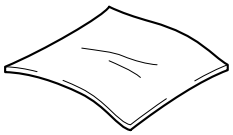
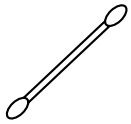
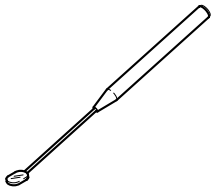
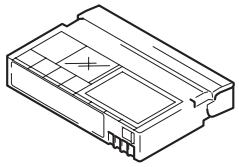
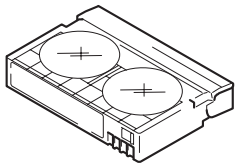
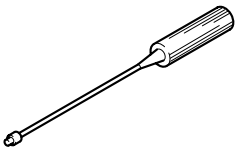
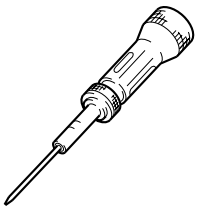
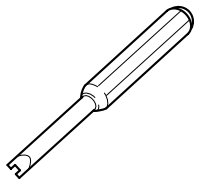
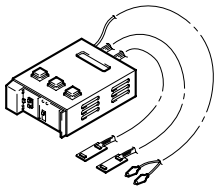
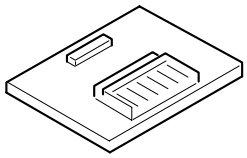
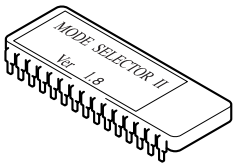
J-1	***J-2*** 	***J-3*** 	***J-4*** 	***J-5*** 
J-6 	***J-7*** 	***J-8*** 	***J-9*** 	***J-10***
J-11 	***J-12*** 	***J-13*** 		

Fig. 2-2

2-5. Mode Selector II Operating Procedure

2-5-1. Introduction

The Mode Selector II is a mechanism drive tool that assists maintenance work of the various mechanism decks. It has the following functions.

1. Manual Test

In this mode, the motor of the mechanism deck is powered only during the period while the switch is turned on manually. Using the Manual Test, the operator can freely control the motor of the mechanism deck.

2. Step Test

In this mode, the motor of the mechanism deck is kept turned on until the mechanical status is changed from the present mechanical status that is obtained from the sensor information. The Step Test is used to confirm a series of movements of the mechanism deck.

3. Auto Test

The Mode Selector II stores the status transition table in its memory as data indicating the respective modes of the mechanism deck. The status transition table can be used to confirm whether a mechanism deck is operating normally or has abnormality from a series of movements of a mechanism deck. If an abnormal status transition is detected during operation, the "NG" indication appears and the mechanism stops moving.

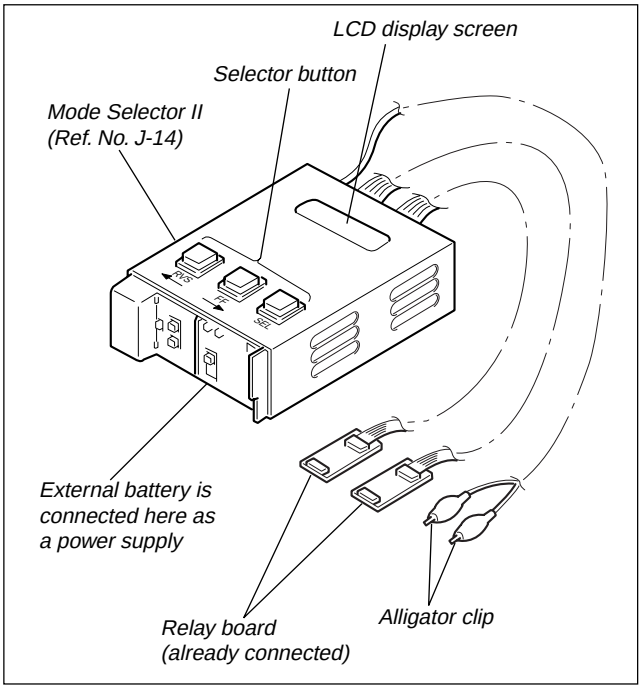


Fig. 2-3

Mode Selector II (J-6082-282-B) connection diagram

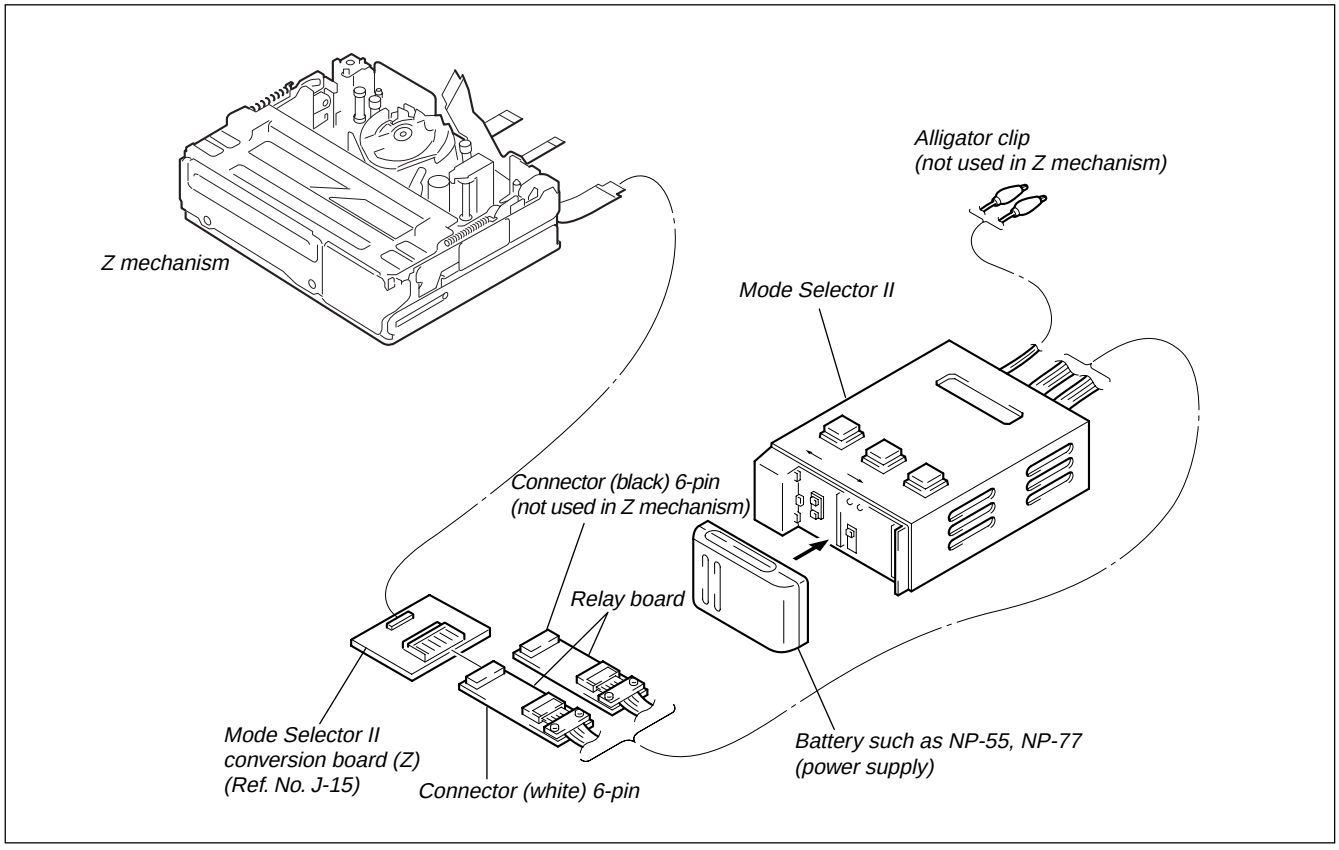
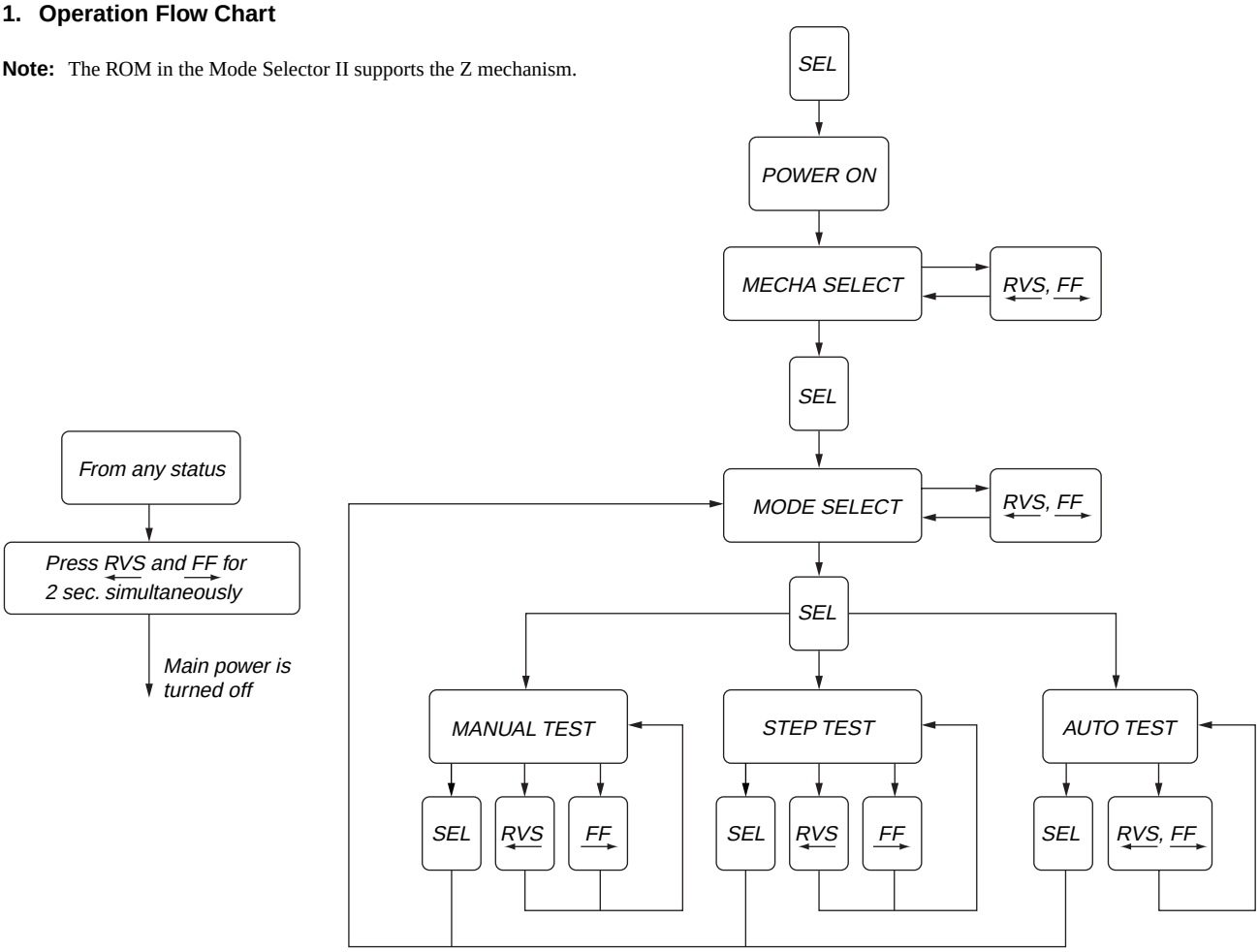


Fig. 2-4

2-5-2. Operation

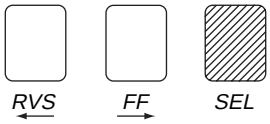
1. Operation Flow Chart

Note: The ROM in the Mode Selector II supports the Z mechanism.



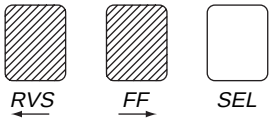
2. Mode Selector II Power On

Turn on the main power of the Mode Selector II as follows.
Press the SEL button.



3. Mode Selector II Power Off

Turn off the main power of the Mode Selector II as follows.
Press the RVS and FF buttons at the same time for 2 seconds or longer while the power is on.



4. Mecha Select

When the main power is turned on, the MECHA SELECT display appears on the LCD screen. Select the desired mechanism name using the RVS and FF buttons. Selection is complete when the SEL button is pressed. (Fig. A shows the Z mechanism.)

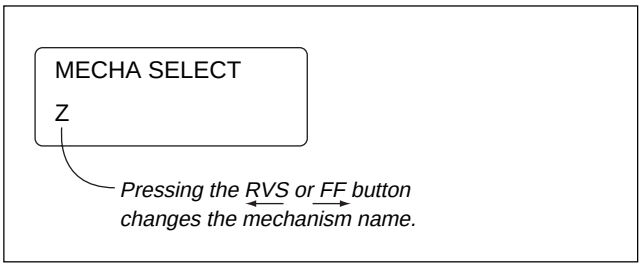


Fig. a

5. Test Type Select

Using the RVS and FF buttons, select a desired test type from the three types of "MANUAL", "STEP" and "AUTO". Selection is complete when the SEL button is pressed.

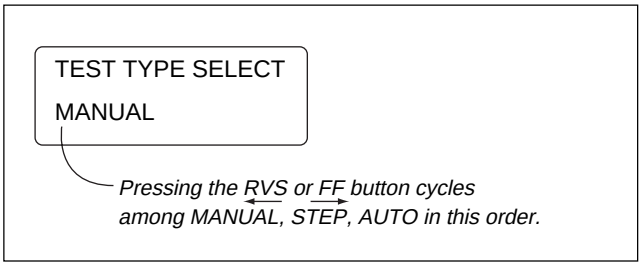


Fig. b

6. Manual Test

In this test, the motor of the mechanism deck is turned on only during the period while the RVS or FF button is pressed manually.

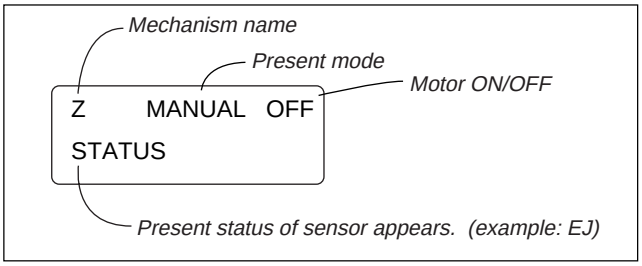


Fig. c

7. Step Test

In this test, the direction of motor movement is determined by the RVS and FF buttons. The motor of the mechanism deck is kept turned on until the mechanical status is changed from the present mechanical status that is obtained from the sensor information.

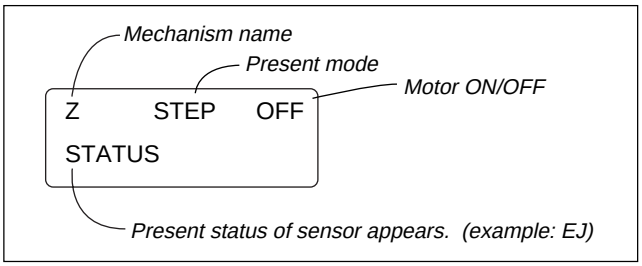


Fig. d

8. Auto Test

In this test, the mechanism deck is tested as to whether it performs a series of movements correctly in accordance with the operation sequence that is memorized earlier for each type of deck, by checking the output signals from sensors with the stored memory. Turning on the RVS or FF button performs the same operation.

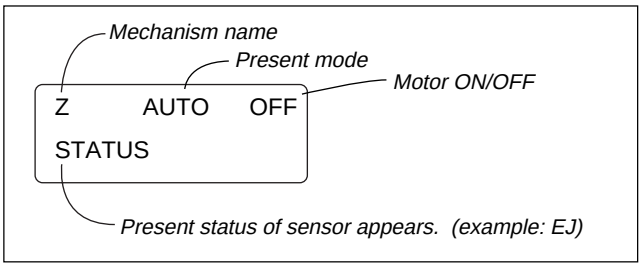


Fig. e

2-5-3. Mechanism Status (Position) Transition Table Using Mode Selector II

After selecting a mechanism deck, select either the MANUAL or STEP test (not AUTO) using the Mode Selector II. The desired mechanism status (position) can be specified by pressing the RVS or FF button. (The selected status appears on STATUS.)
EJ⟷ULE⟷SR⟷HL⟷STOP⟷R/P

MD name / Code				Z Mechanism
A	B	C		
0	1	0	1	EJ
1	1	0	2	ULE
1	0	0	3	SR
1	0	1	4	HL
0	0	1	5	STOP
0	1	1	6	R/P

2-5-4. Battery Alarm Indication

When the level of the battery used to supply power to this system decreases, this display appears asynchronously. When this happens, all operations are disabled and the battery must be replaced.

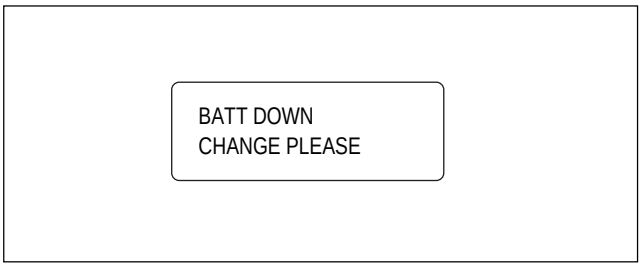
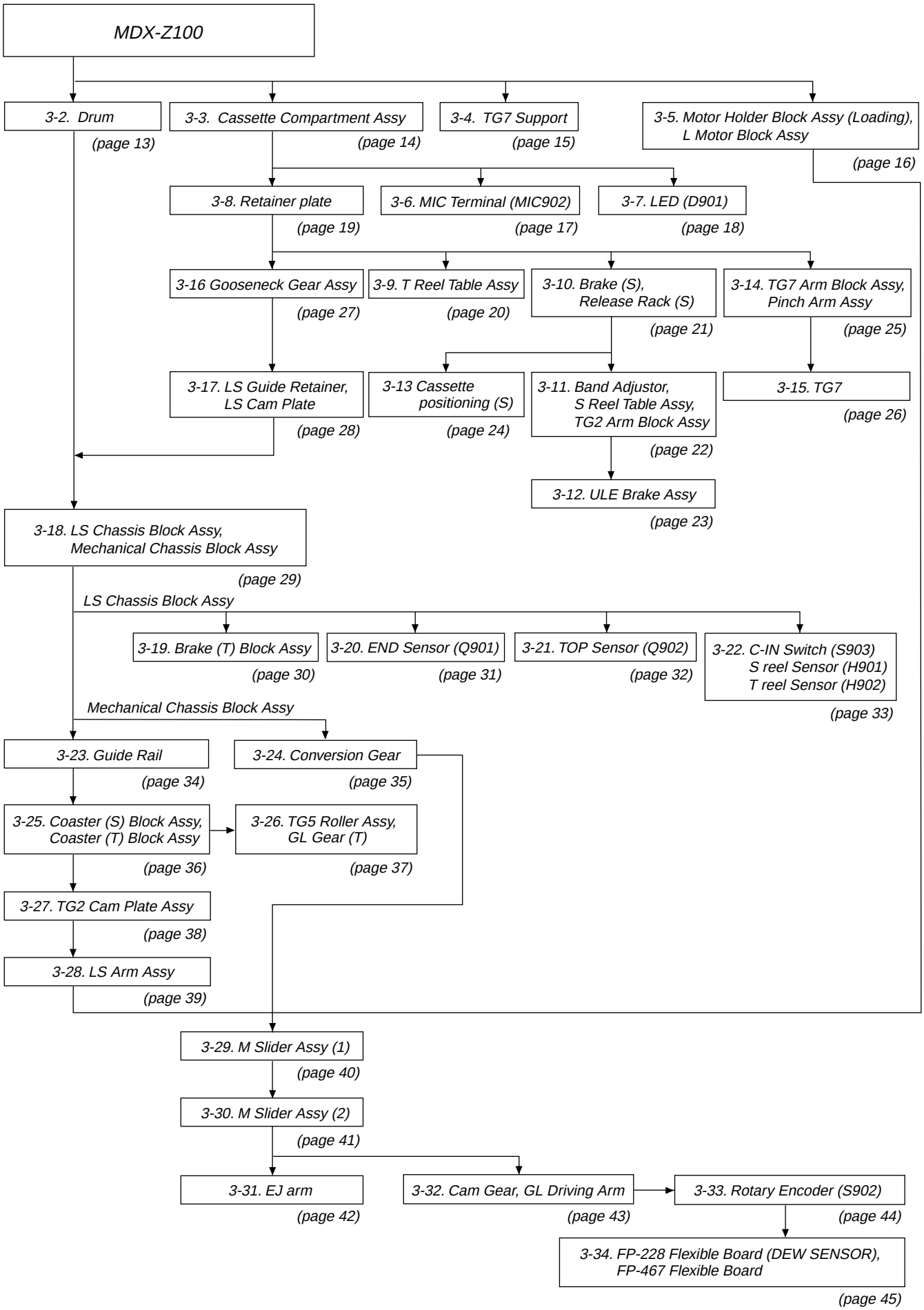


Fig. f

3. Check, Adjustment and Replacement of Mechanical Parts

3-1. Flowchart of Replacement of Mechanical Parts



3-2. Drum

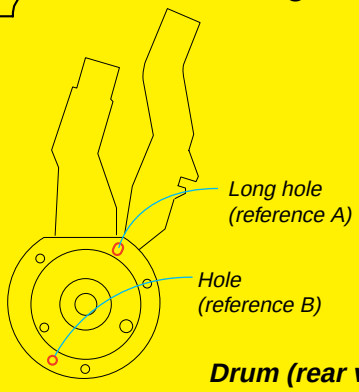
1. Removal procedure

1) Remove head drum flexible board Ⓒ from the notch of the mechanical chassis block assy.
2) Remove the drum fixing screw (M1.4 × 1.3) ① and remove the drum assy ②.

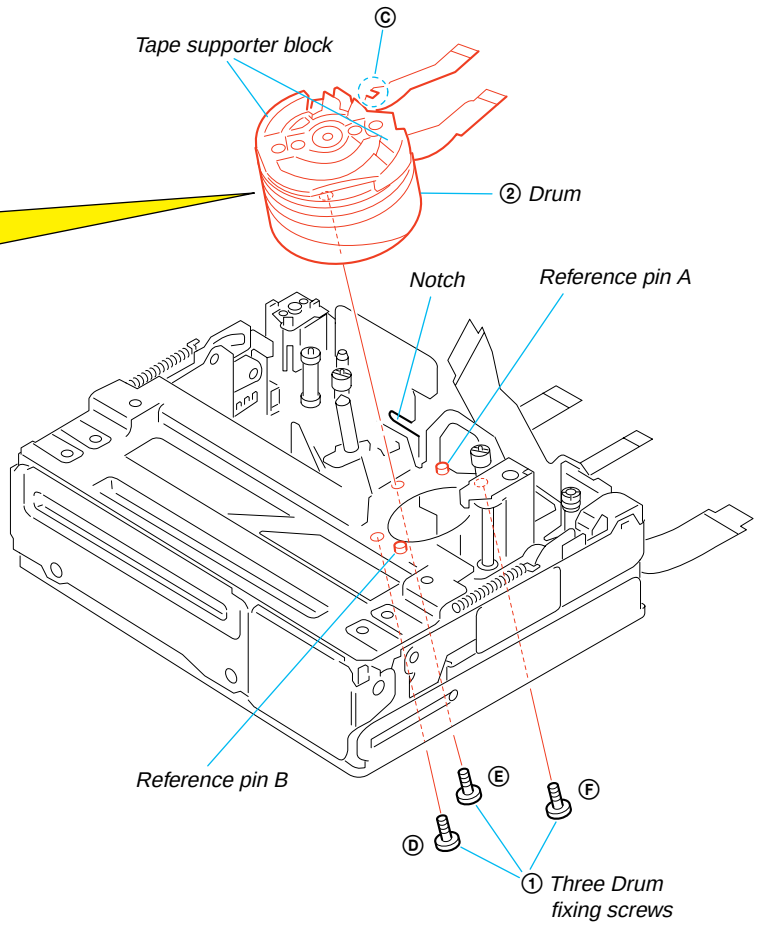
2. Attachment procedure

1) Ensure that head drum fixible board is hooked on the tape supporter block.
2) Hold the tape-supporter block of the drum ② and insert the drum flexible board into the mechanical chassis block assy.
3) Insert the two reference holes A and B of the drum into the reference pins A and B of the drum base assy.
4) Hook the flexible board Ⓒ portion on the notch.
5) Install the three drum fixing screws (M1.4 × 1.3) ① in the order starting from Ⓓ, then Ⓔ, and finally Ⓕ. Then tighten the screws.
   Tightening torque: 0.059 ± 0.01N•m (0.6 ± 0.1kgf•cm)
   Return Ⓔ 120°, then apply the screw locking paint (Neji lock).
6) Clean the drum by referring to section2-1.
7) Perform the tape path adjustment. (Refer to “4-4. Tape Path Adjustment”.)

Key Points in Re-assembling

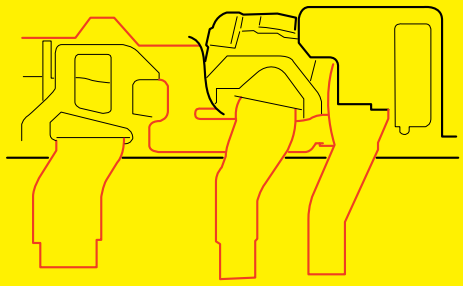


Drum (rear view)



Drum Flexible Board Processing

Key Points in Re-assembling



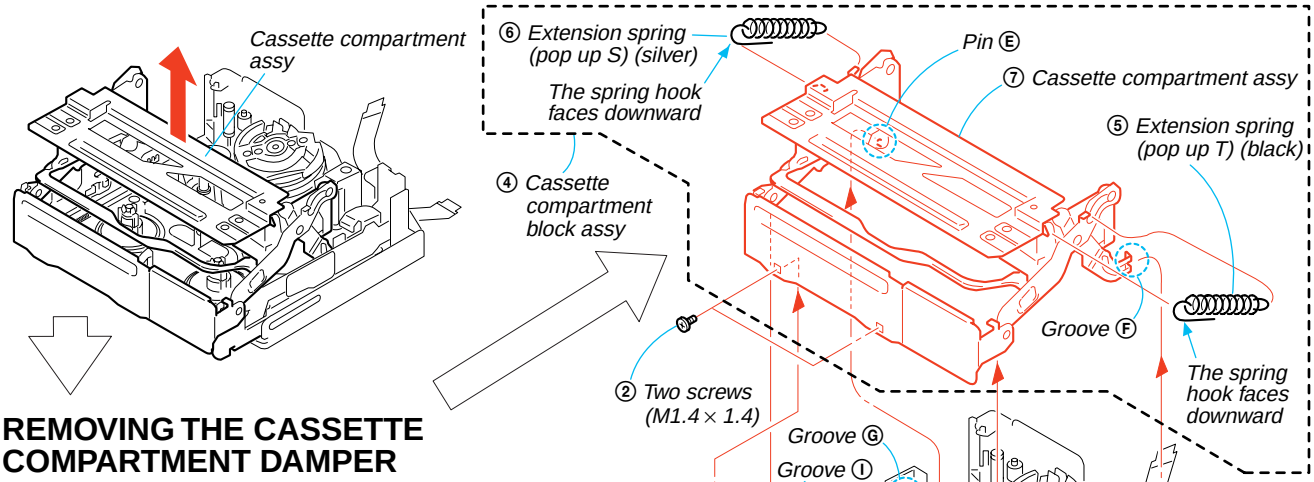
3-3. Cassette Compartment Assy

1. Removal procedure

1) Set the [EJ] mode.
2) Press the cassette compartment down halfway. Pull the cassette compartment damper ① in the direction of the arrow Ⓐ. Then rotate it in the Ⓑ direction, and remove it in the direction of Ⓒ.
3) Remove the two screws (special head screw M1.4 × 1.4) ②.
4) Remove the LS chassis block assy ③ in the direction of the arrow Ⓓ.
5) Remove the pin Ⓔ and groove Ⓕ of the cassette compartment assy ④ from the LS chassis groove Ⓖ and pin Ⓗ. Then remove the cassette compartment block assy ④.
6) Remove the tension spring (POP UP T) (black) ⑤.
7) Remove the tension spring (POP UP S) (silver) ⑥.Then remove the cassette compartment assy ⑦.

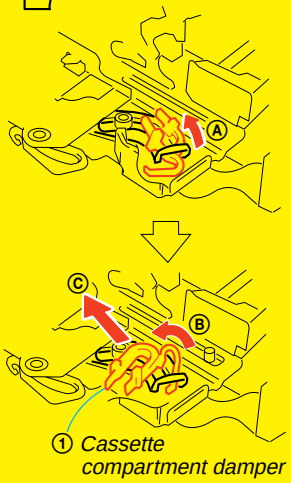
2. Attachment procedure

1) Set the [ULE] mode.
2) Install the tension spring (cassette compartment S) (POP UP S) (silver) ⑥ in to the cassette compartment assy ⑦. (The spring should be hooked on the front stay with the spring end facing upward.)
3) Install the tension spring (cassette compartment T) (POP UP T) (black) ⑤ in to the cassette compartment assy ⑦. (The spring should be hooked on the front stay with the spring end facing upward.)
4) Install the pin Ⓔ and groove Ⓕ of the cassette compartment assy ④ into the LS chassis groove Ⓖ and pin Ⓗ.
5) In the status that the LS block assy ③ is kept open, insert it into the grooves Ⓘ and Ⓙ of the LS chassis block assy.
6) Close the LS chassis block assy ③ in the direction opposite to the arrow Ⓓ, and install it with the two screws (special head screw M1.4 × 1.4) ②.
   Tightening torque: 0.059 ± 0.01N•m (0.6 ± 0.1kgf•cm)
7) The cassette compartment down halfway. Pass the Ⓚ portion of the cassette compartment damper ① through the groove at the tip of the cassette compartment. Then pull the Ⓛ portion and fix it using tweezers or something.

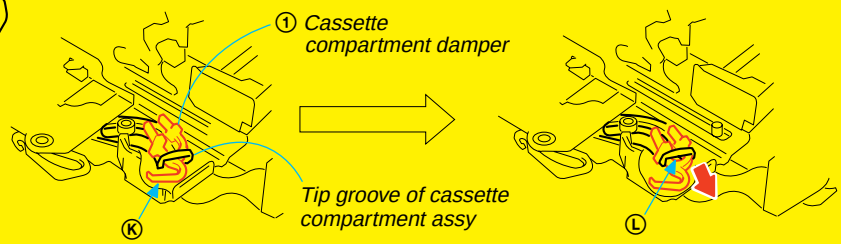


REMOVING THE CASSETTE COMPARTMENT DAMPER

Points to be noted



Key Points in Re-assembling



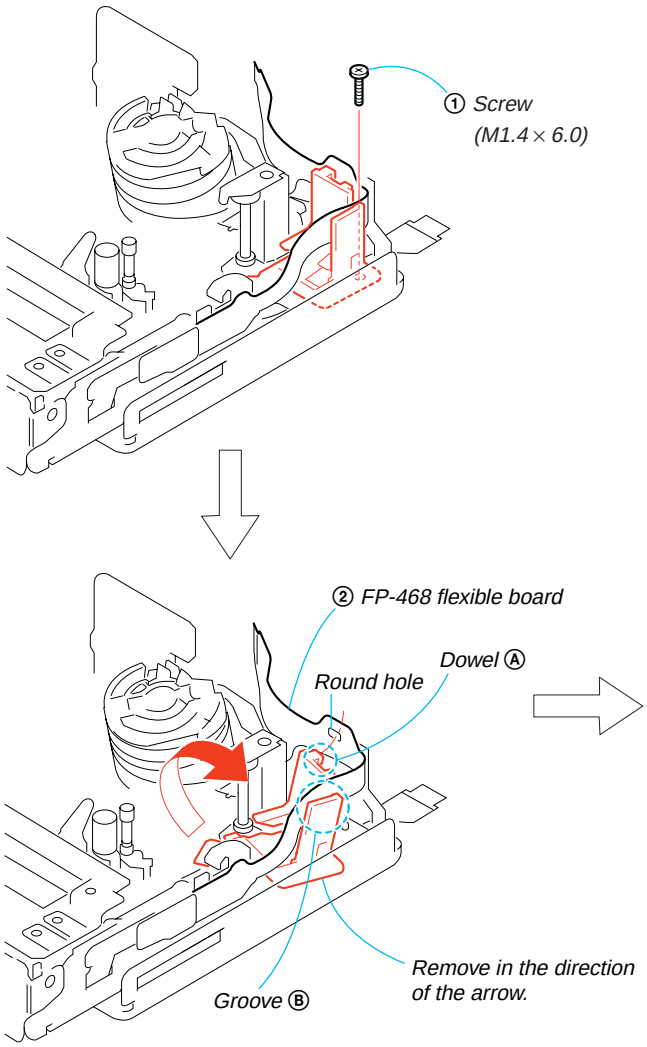
3-4. TG7 Support

1. Removal procedure

1) Remove the screw (special head screw M1.4 × 6.0) ①.
2) Remove the FP-468 flexible board ② from the dowel Ⓐ of the TG7 support.
3) Remove the FP-468 flexible board ② from the groove Ⓑ of the TG7 support.
4) Remove the TG7 support ③ in the direction of the arrow.

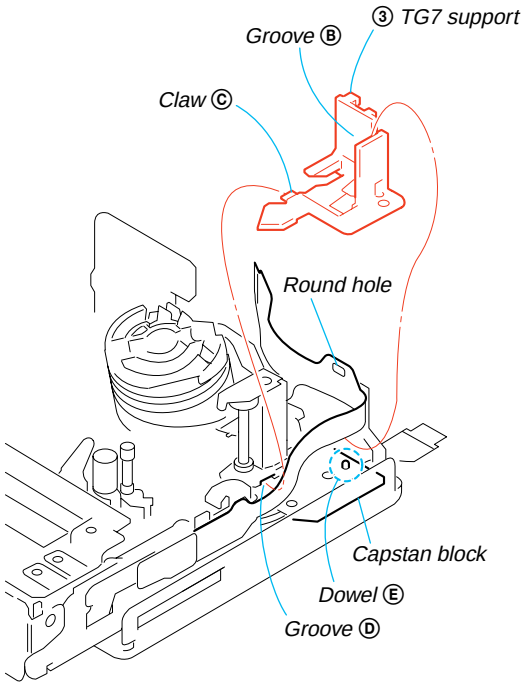
2. Attachment procedure

1) Install the FP-468 flexible board ② into the groove Ⓑ of TG7 support ③.
2) Insert the claw Ⓒ of the TG7 support ③ into the groove Ⓓ of the capstan block, and fix it while aligning with the dowel Ⓔ.
3) Align the round hole of the FP-468 flexible board ② with the dowel Ⓐ of the TG7 support ③.
4) Install the screw (special head screw M1.4 × 6.0) ①.
Tightening torque: 0.059 ± 0.01N•m (0.6 ± 0.1kgf•cm)



Points to be noted

• Be careful not to damage the FP-468 flexible board.



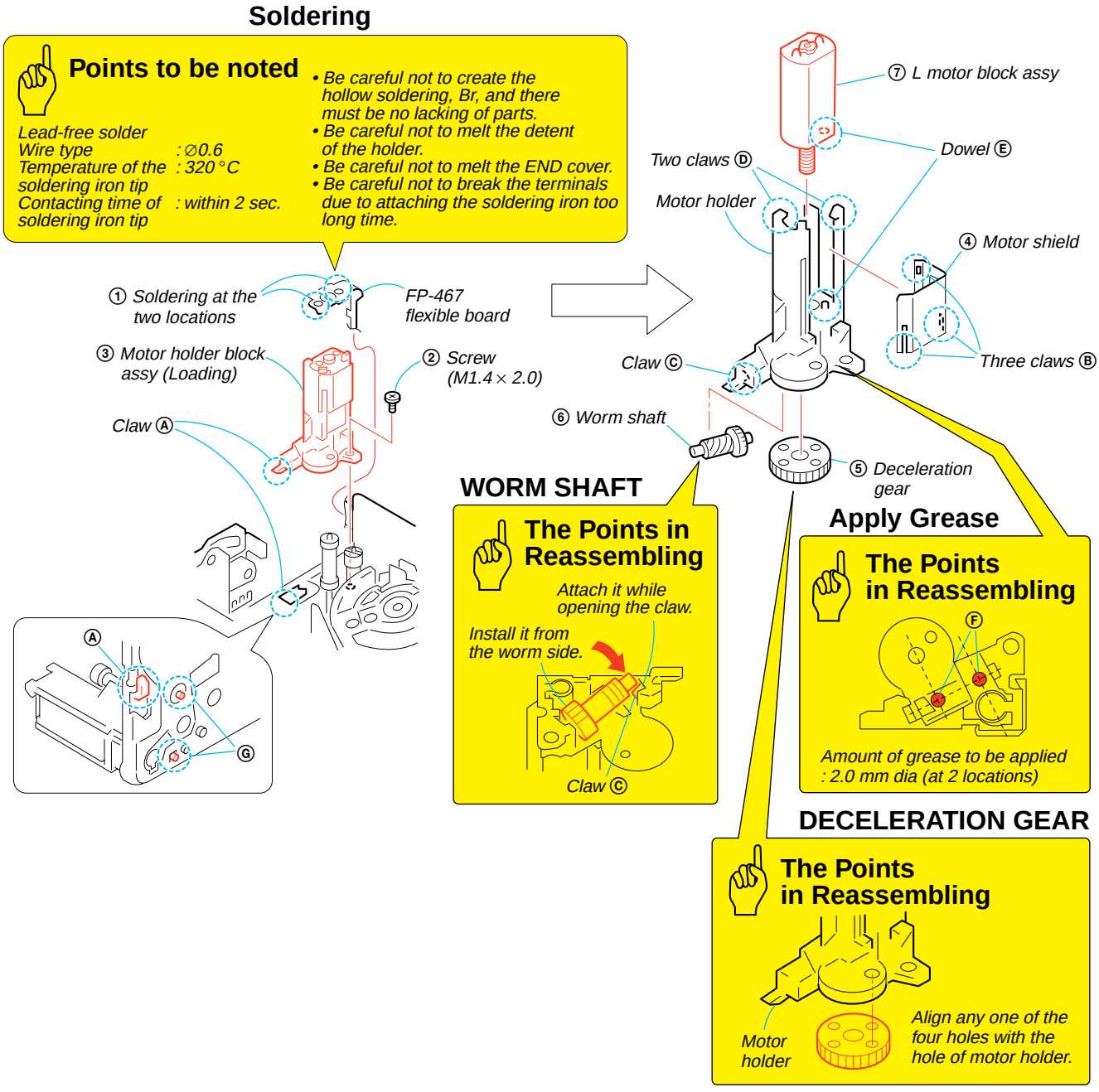
3-5. Motor Holder Block Assy and L Motor Block Assy

1. Removal procedure

1) Remove soldering at the two locations ①, and remove the FP-467 flexible board from the motor holder block assy (loading) ③.
2) Remove the screw (special head screw M1.4 × 2.0) ②.
3) Remove the motor holder block assy (loading) ③ by pulling it off from the claw Ⓐ.
4) Release the three claws Ⓑ and remove the motor shield ④.
5) Remove the deceleration gear ⑤.
6) Release the claw Ⓒ and remove the worm shaft ⑥.
7) Release the two claws Ⓓ and remove the L motor block assy ⑦ from the motor holder.

2. Attachment procedure

1) Confirm the direction of the L motor block assy ⑦. Align the dowels Ⓔ then install into the motor holder. (Insert the motor worm so that the motor worm does not touch the motor holder, and fix it with two claws Ⓓ.
2) Engage the three claws Ⓑ and install the motor shield.
3) Apply 2.0 g of grease (at 2 locations) to the bottom Ⓕ of the motor holder.
4) Install the worm shaft ⑥ from the worm side and set the claw.
5) Install the reduction gear ⑤.
6) Engage the claw Ⓐ and align the two dowels Ⓖ. Then install the motor holder block assy (loading) ③ in the mechanical chassis block. Install the screw (special head screw M1.4 × 2.0) ②.
   Tightening torque: 0.059 ± 0.01N•m (0.6 ± 0.1kgf•cm)
7) Make soldering at the two locations ①. Install the motor holder block assy (loading) ③ into the FP-467 flexible board ④.


Soldering
Points to be noted
Lead-free solder
Wire type : ∅0.6
Temperature of the soldering iron tip : 320 °C
Contacting time of soldering iron tip : within 2 sec.
• Be careful not to create the hollow soldering, Br, and there must be no lacking of parts.
• Be careful not to melt the detent of the holder.
• Be careful not to melt the END cover.
• Be careful not to break the terminals due to attaching the soldering iron too long time.
① Soldering at the two locations
FP-467 flexible board
③ Motor holder block assy (Loading)
② Screw (M1.4 × 2.0)
Claw Ⓐ
Ⓐ
Ⓖ
⑦ L motor block assy
Two claws Ⓓ
Dowel Ⓔ
Motor holder
④ Motor shield
Three claws Ⓑ
Claw Ⓒ
⑥ Worm shaft
⑤ Deceleration gear
WORM SHAFT
The Points in Reassembling
Attach it while opening the claw.
Install it from the worm side.
Claw Ⓒ
Apply Grease
The Points in Reassembling
Ⓕ
Amount of grease to be applied : 2.0 mm dia (at 2 locations)
DECELERATION GEAR
The Points in Reassembling
Motor holder
Align any one of the four holes with the hole of motor holder.

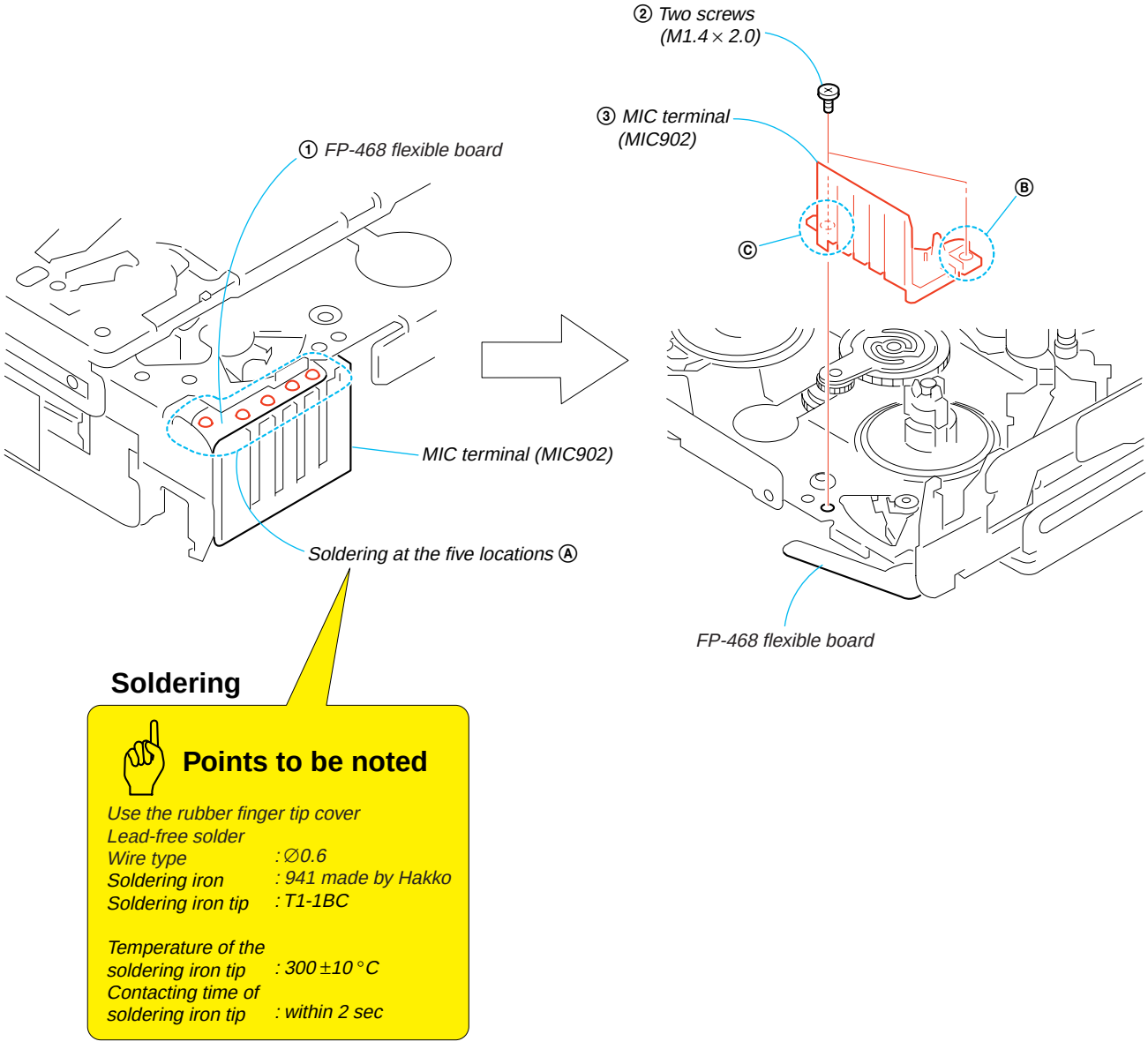
3-6. MIC Terminal (MIC902)

1. Removal procedure

1) Remove soldering at the five locations Ⓐ, and remove the FP-467 flexible board ① from the MIC terminal (MIC902) ③.
2) Remove the screw (special head screw M1.4 × 2.0) ② and remove the MIC terminal (MIC902) ③.

2. Attachment procedure

1) While pressing the top of the MIC terminal (MIC902) ③, tighten the two screws (special head screw M1.4 × 2.0) ② in the order of Ⓑ then Ⓒ.
   Tightening torque: 0.059 ± 0.01N•m (0.6 ± 0.1kgf•cm)
2) Make soldering at the five locations Ⓐ, and connect the FP-468 flexible board ① into the MIC terminal (MIC902) .



Soldering

Points to be noted

Use the rubber finger tip cover
Lead-free solder

Wire type	*: ∅0.6*
Soldering iron	*: 941 made by Hakko*
Soldering iron tip	*: T1-1BC*
Temperature of the soldering iron tip	*: 300 ±10 °C*
Contacting time of soldering iron tip	*: within 2 sec*

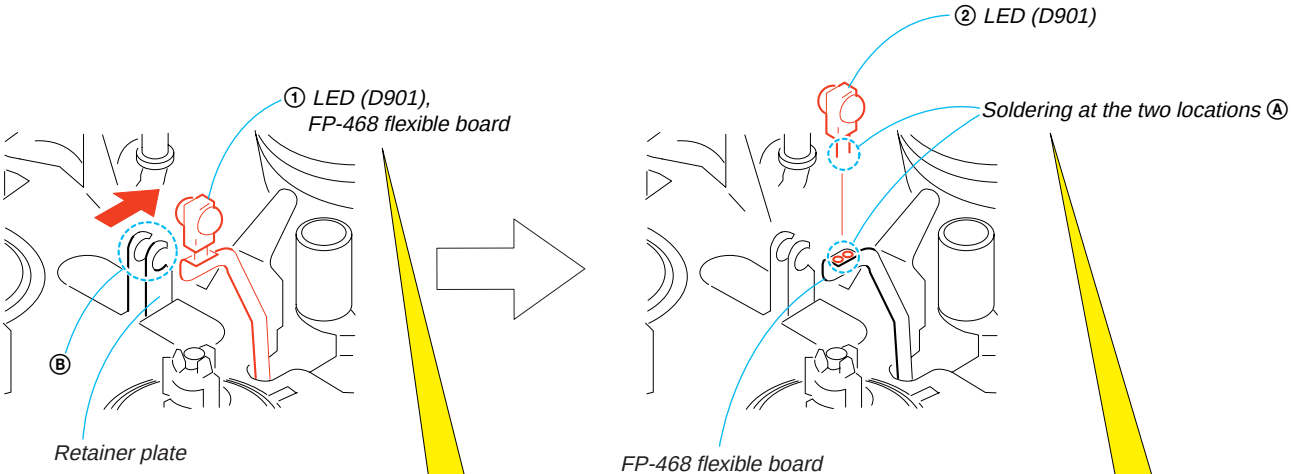
3-7. LED (D901)

1. Removal procedure

1) Remove LED (D901) and the FP-468 flexible board ① from the retainer plate.
2) Remove soldering at the two locations Ⓐ and remove LED (D901) ②.

2. Attachment procedure

1) Install the LED (D901) ② to the FP-468 flexible board by making soldering at the two locations Ⓐ.
2) Fold the FP-468 flexible board ① beneath the LED (D901) with finger tip so that it is inserted into the Ⓑ portion of the retainer plate.



LED (D901), FP-468 FLEXIBLE BOARD

Points to be noted

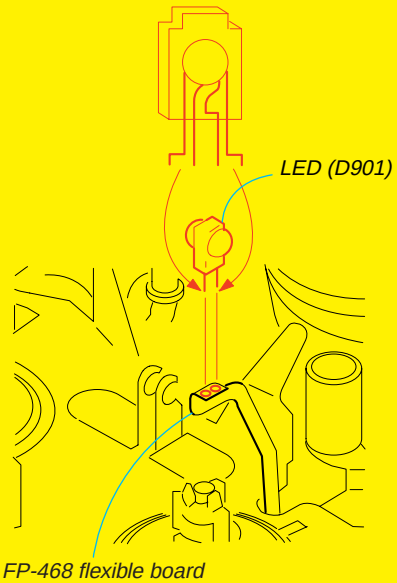
- *There must be no solder crack.*
- *There must be no scars and no stains.*
- *The flexible board must have no breakdown.*
- *The retainer plate and LED block must have no deformation.*

Soldering

Points to be noted

Rubber finger tip protection cover must be used.
Lead-free solder
Wire type: diameter ∅0.6
Soldering iron: 941 made by Hakko
Soldering iron tip: T1-1BC
Temperature of the soldering iron tip: 300 ±10 °C
Contacting time of soldering iron tip: within 2 sec.

Direction of the terminal is specified.



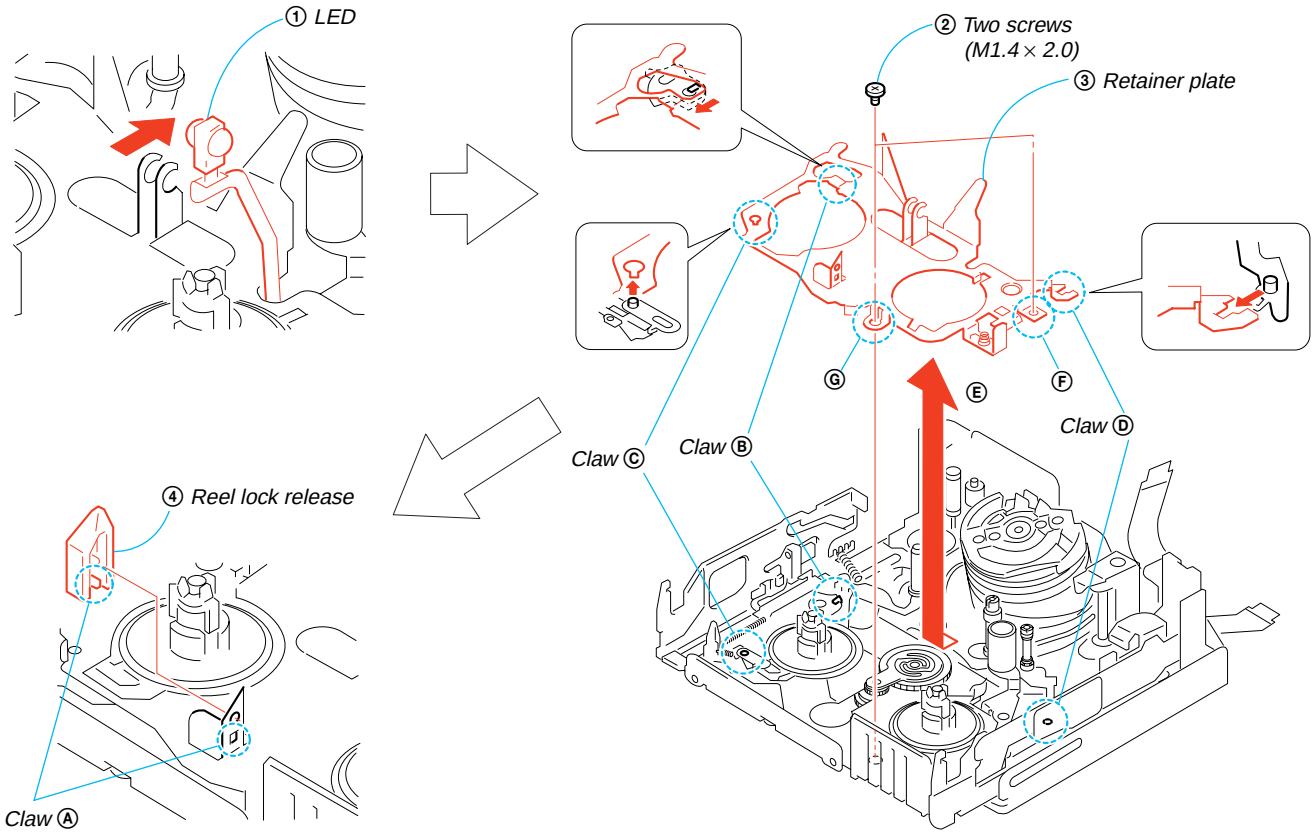
3-8. Retainer Plate

1. Removal procedure

1) Remove LED ① from the retainer plate.
2) Remove the two screws (special head screw M1.4 × 2.0) ②.
3) Release the three claws Ⓑ, Ⓒ and Ⓓ, and remove the retainer plate ③ in the direction of the arrow mark Ⓔ.
4) Release the claw Ⓐ and remove the reel lock release ④.

2. Attachment procedure

1) Install the reel lock release ④.
2) Place the retainer plate ③ on top of the LS chassis block assy and engage the three claws in the order starting from Ⓓ, Ⓒ and Ⓑ.
3) Install the two screws (special head screw M1.4 × 2.0) ② in the order starting from Ⓕ then Ⓖ.
   Tightening torque: 0.059 ± 0.01N•m (0.6 ± 0.1kgf•cm)
4) Install LED ① to the retainer plate.



REEL LOCK RELEASE

Key Points in Re-assembling

- *The reel lock release should not be re-used.*
- *The retainer plate must not have any deformation.*
- *The reel lock release should be fully installed. (Should not be left in the half-installed state.)*

RETAINER PLATE

Key Points in Re-assembling

- *All claws must be fully engaged. (Caution : No claws should be left disengaged.)*
- *The flexible board should not be pinched by anything.*
- *The retainer plate must not touch with the MIC terminal.*

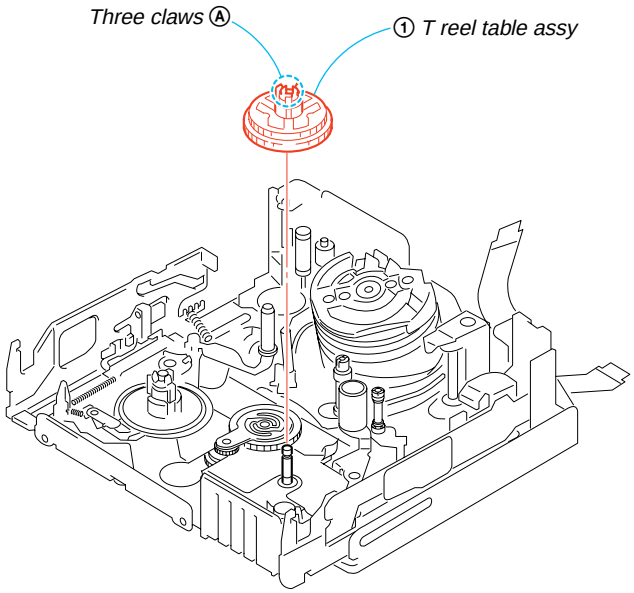
3-9. T Reel Table Assy

1. Removal procedure

1) Remove the T reel table assy ①, averting three claws Ⓐ.

2. Attachment procedure

1) Confirm that the supplied part is really the T reel table assy ①. Insert the T reel table assy ① into the T reel shaft. Install the T reel table assy ① and lock it at the position where you can hear the snapping sound. You can find the locking position by rotating the T reel table assy ①.



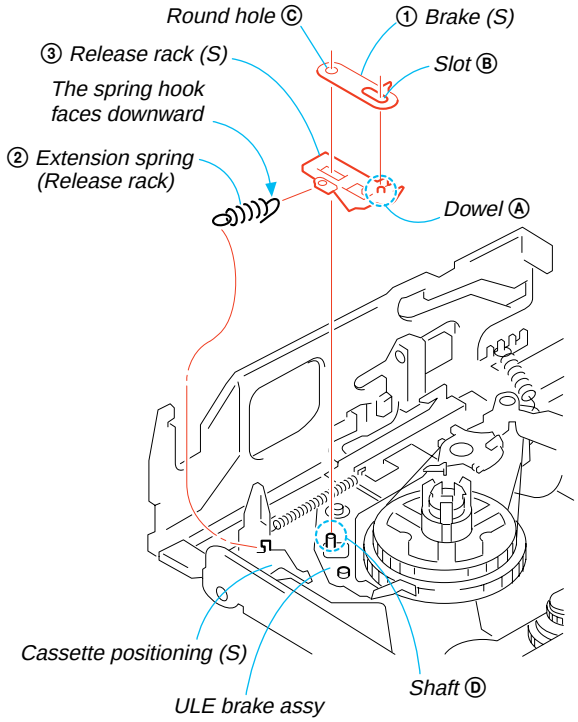
3-10. Brake (S) and Release Rack (S)

1. Removal procedure

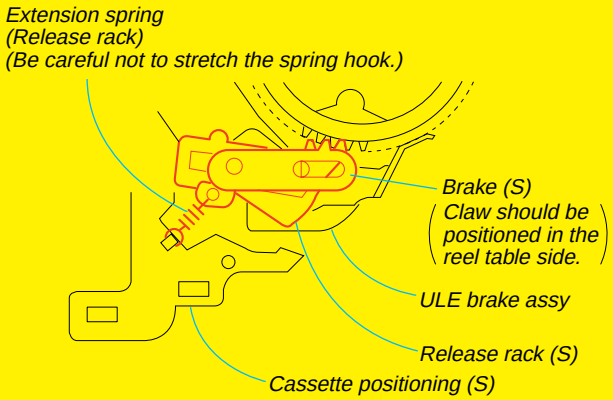
1) Remove the brake (S) ①.
2) Remove the tension spring (release rack (S)) ②.
3) Remove the release rack (S) ③.

2. Attachment procedure

1) Remove the release rack (S) ③ by holding it with a ultra precision tweezers. Install the tension spring (release rack) ② while being careful of the installation direction of the tension spring.
2) Hook the tension spring (release rack) ② on the hook of the cassette positioning (S), and then install it in the ULE brake assy.
3) Insert the slot Ⓑ in the dowel Ⓐ of the release rack (S) ③. Insert the round hole Ⓒ into the pivot shaft Ⓓ and install the brake (S) ①.
(Installation direction: Claw should be positioned in the reel table side.)



Key Points in Re-assembling


Extension spring (Release rack) (Be careful not to stretch the spring hook.)
Brake (S) Claw should be positioned in the reel table side.
ULE brake assy
Release rack (S)
Cassette positioning (S)

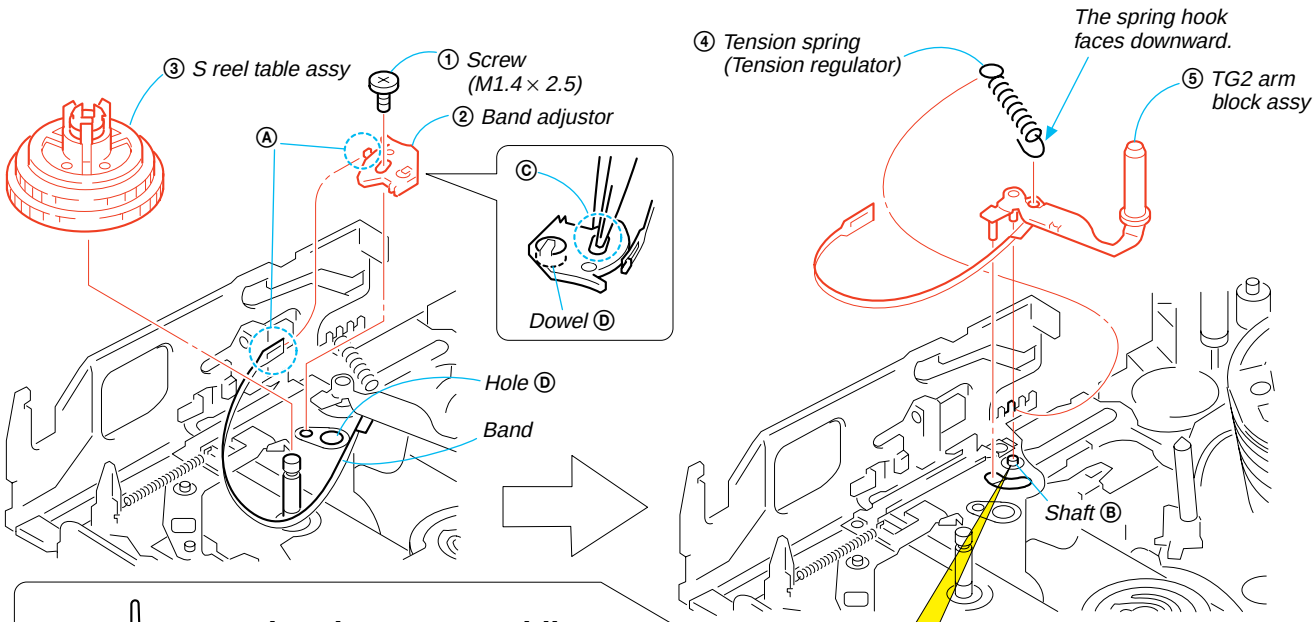
3-11. Band Adjuster, S Reel Table Assy and TG2 Arm Block Assy

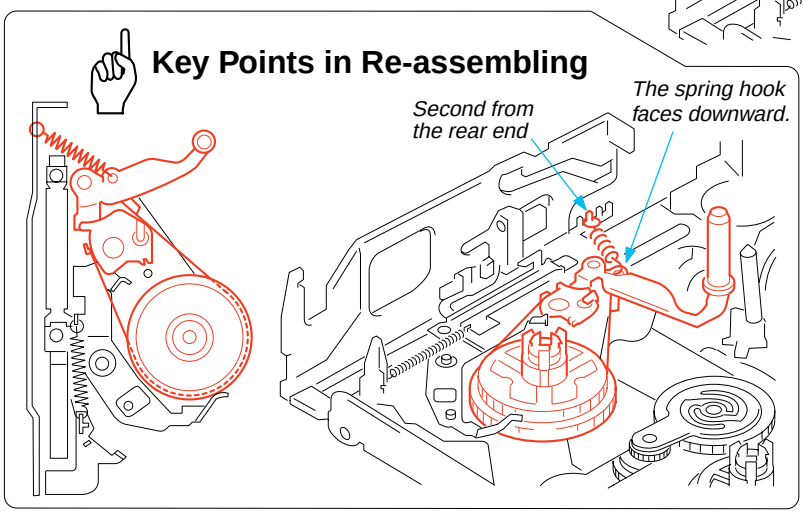
1. Removal procedure

1) Remove the screw (special head screw M1.4 × 2.5) ①.
2) Remove the band Ⓐ of the TG2 arm block and remove the band adjuster ②.
3) Remove the S reel table assy ③.
4) Remove the tension spring (tension regulator spring) ④.
5) Remove the TG2 arm block assy ⑤.

2. Attachment procedure

1) Install the S reel table assy ③.
2) Apply grease in the TG2 arm pivot shaft Ⓑ.
   Amount of grease: a ball of 1.0 mm diameter of grease
   Re-application of grease to the point which is greased already before is not necessary.
3) Hold the TG2 arm block assy ⑤ with tweezers and insert it in the TG2 arm pivot shaft Ⓑ.
4) Hook the tension spring (tension regulator spring) ④ on the TG2 arm block ⑤ with tweezers so that the hook faces downward.
5) Hook the tension spring (tension regulator spring) ④ on the LS chassis block assy (the second hook from the rear end).
6) Hook the Ⓐ portion of the band on the claw of the band adjuster ②.
7) Hold the band adjuster with tweezers as shown in Ⓒ. Insert the band into groove of the S reel table assy while rotating it, and insert the adjuster's dowel into the dowel hole Ⓓ of the LS chassis block assy.
8) Install the band adjuster ② with the screw (special head screw M1.4 × 2.5) ①.
   Tightening torque: 0.059 ± 0.01N•m (0.6 ± 0.1kgf•cm)
9) Perform the TG2 FWD Position Adjustment referring to section 4-1.
10) Perform the FWD Back-tension Adjustment referring to section 4-4.
11) Perform the Reel Torque Check referring to section 4-2.

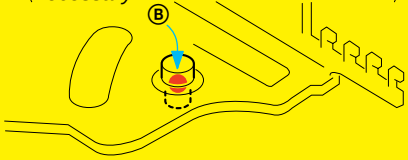




Apply Grease

Points to be noted

During installation, apply grease in the TG2 arm pivot shaft hole.
Amount of grease:
a ball of grease of 1.0 mm diameter
Re-application of grease to the point which is greased already before is not necessary.



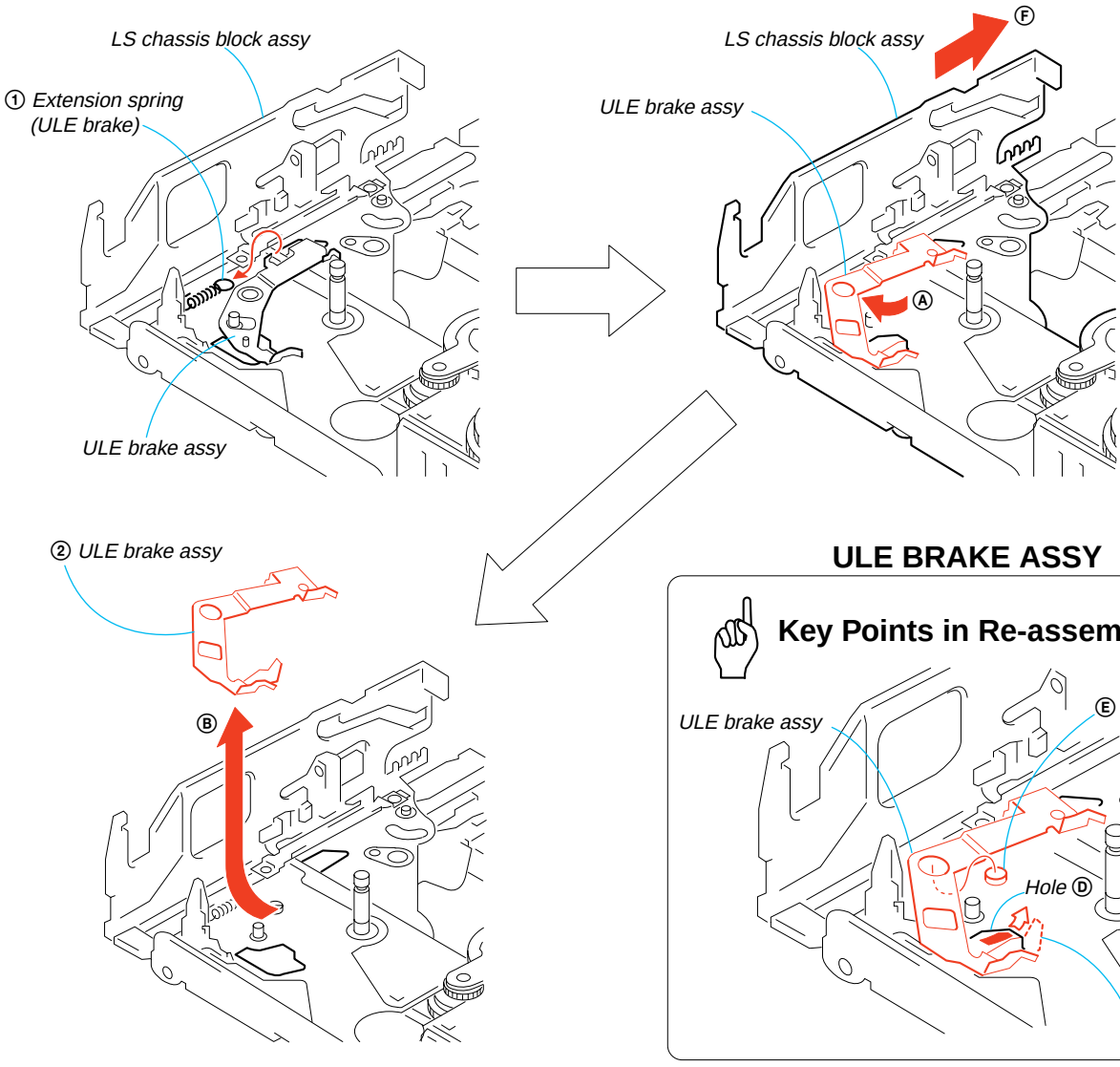
3-12. ULE Brake Assy

1. Removal procedure

1) Remove the tension spring (ULE brake) ① from the ULE brake assy ②.
2) Slide the LS chassis block assy slightly in the direction of the arrow Ⓕ.
3) Slant the ULE brake assy ② in the direction of the arrow Ⓐ and remove it by sliding it in the direction of Ⓑ.

2. Attachment procedure

1) Confirm the front side and the rear side of the ULE brake assy ②. Hold it correctly with tweezers. Insert the portion Ⓒ into the hole Ⓓ of the LS chassis block assy and install the center hole in the Ⓔ of the chassis.
2) Install the tension spring (ULE brake assy) ①.



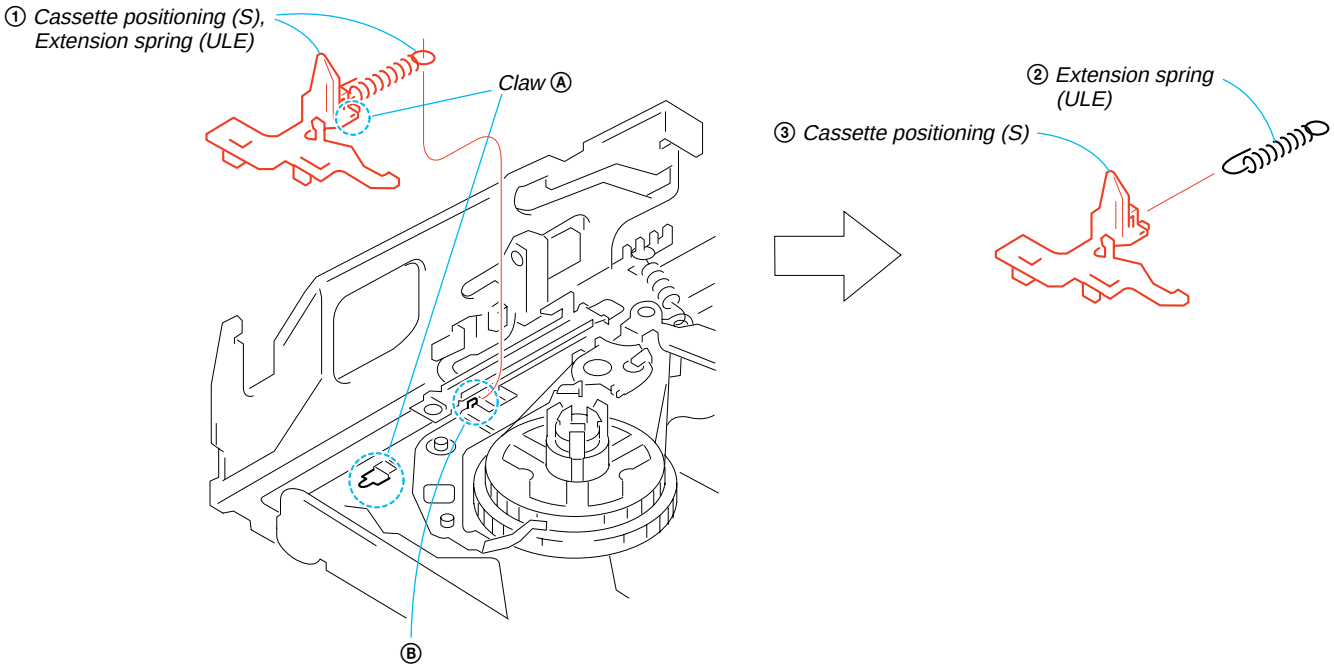
3-13. Cassette Positioning (S)

1. Removal procedure

1) Remove the tention spring (ULE brake) ② from the hook Ⓑ of ULE brake assy.
2) Slide the cassette positioning (S), then remove the cassette positioning (S) and tension spring (ULE brake) ① all together at the same time.
3) Remove the tension spring (ULE brake) ② from the cassette positioning (S) ③.

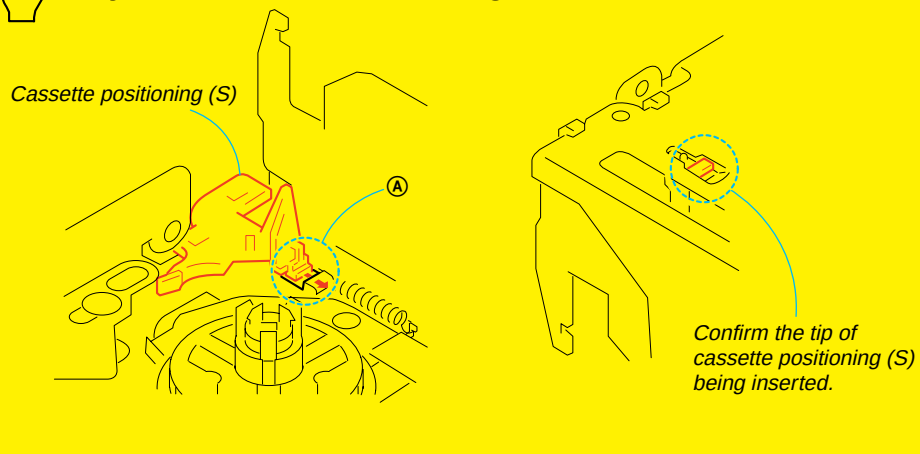
2. Attachment procedure

1) Hook the tension spring (ULE brake) ② on the cassette positioning (S) ③ with tweezers.
2) Hold the cassette positioning (S) ③ with tweezers and insert the top tip of the claw into the LS chassis block assy Ⓐ. Lock it by sliding it in.
3) Install the other end of the tension spring (ULE brake) ② on the hook Ⓑ.



CASSETTE POSITIONING (S)

Key Points in Re-assembling



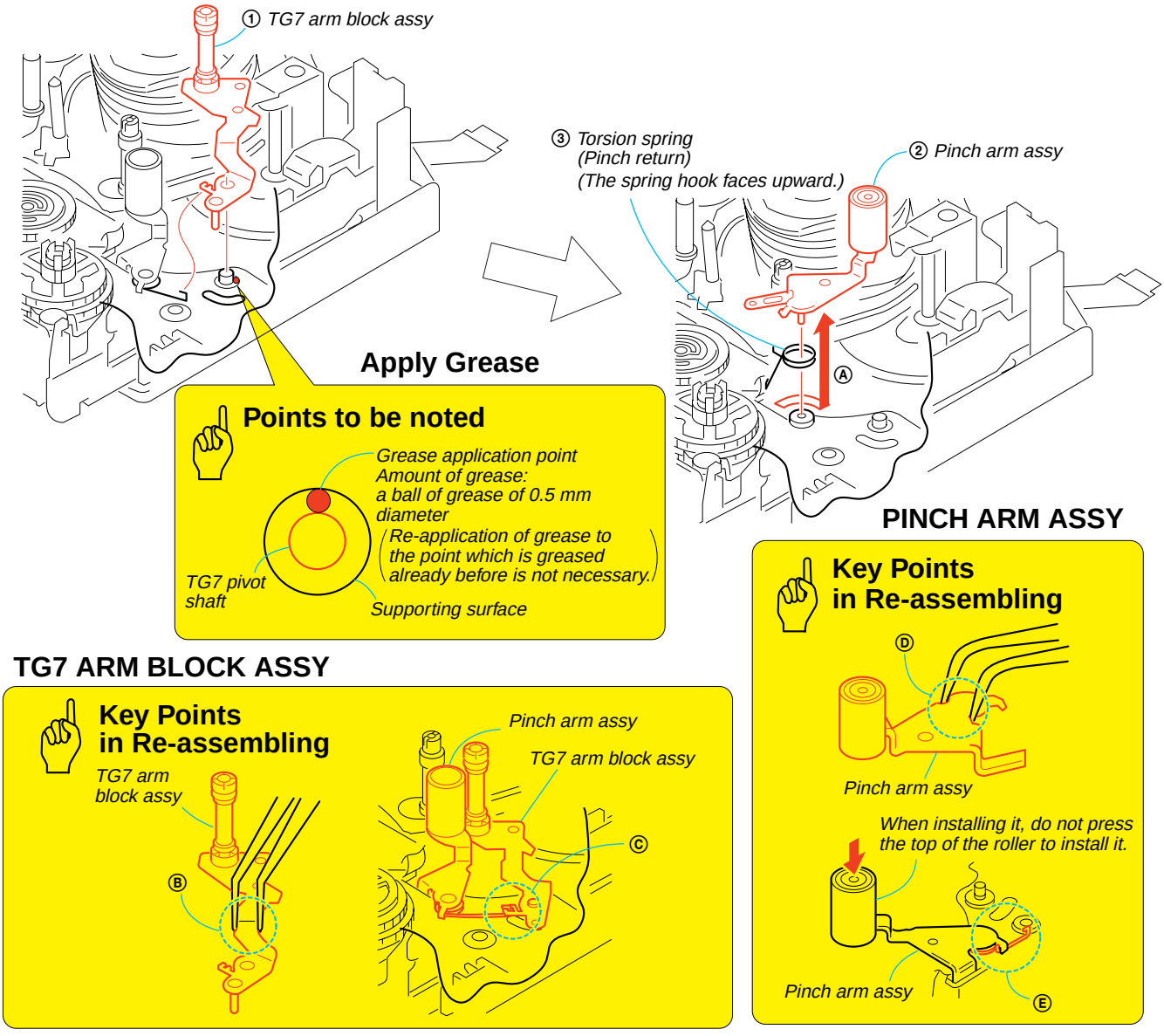
3-14. TG7 Arm Block Assy and Pinch Arm Assy

1. Removal procedure

1) Remove the TG7 arm block assy ①.
2) Rotate the pinch arm assy ② in the direction of the arrow Ⓐ and remove it.
3) Remove the torsion spring (pinch return) ③.

2. Attachment procedure

1) Hold the torsion spring (pinch return) ③ with tweezers. Confirm that the hook faces upward and install it in the bearing.
2) Hold the pinch arm assy ② as shown in Ⓓ and install it in the pinch arm bearing.
3) Hold the torsion coil spring (pinch return) ③ with tweezers and install it as shown in Ⓔ.
4) Apply grease on the supporting surface of the TG7 pivot shaft.
   Amount of grease: a ball of grease of 0.5 mm diamte
   Re-application of grease to the point which is greased already before is not necessary.
5) Hold the TG7 arm block assy ① as shown in Ⓑ and insert it in the pivot shaft of the TG7 arm.
6) Hold the torsion spring (pinch return) ③ with tweezers and install it on the hook of the TG7 arm block assy ① as shown in Ⓒ.
7) Confirm that the torsion spring (pinch return) ③ does not override on the pinch supporting shaft.



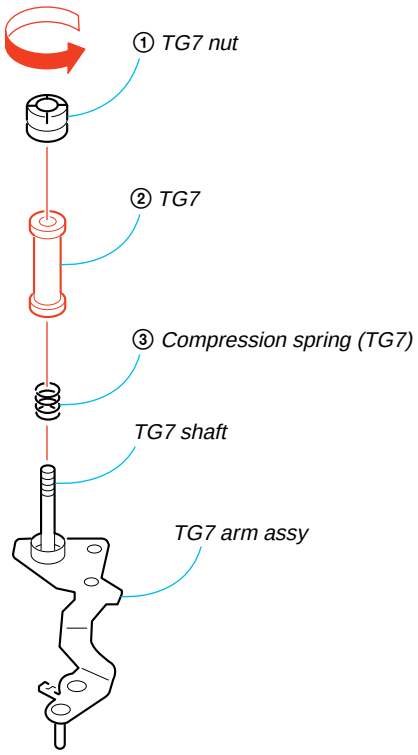
3-15. TG7

1. Removal procedure

1) Remove the TG7 nut ① by turning it in the direction of the arrow.
2) Remove the TG7 ② and compression coil spring ③ from the TG7 arm block assy.

2. Attachment procedure

1) Install the compression coil spring ③ and TG7 ② in the TG7 shaft of the TG7 arm block assy.
2) Install the TG7 nut ① by turning it in the opposite direction of the arrow.



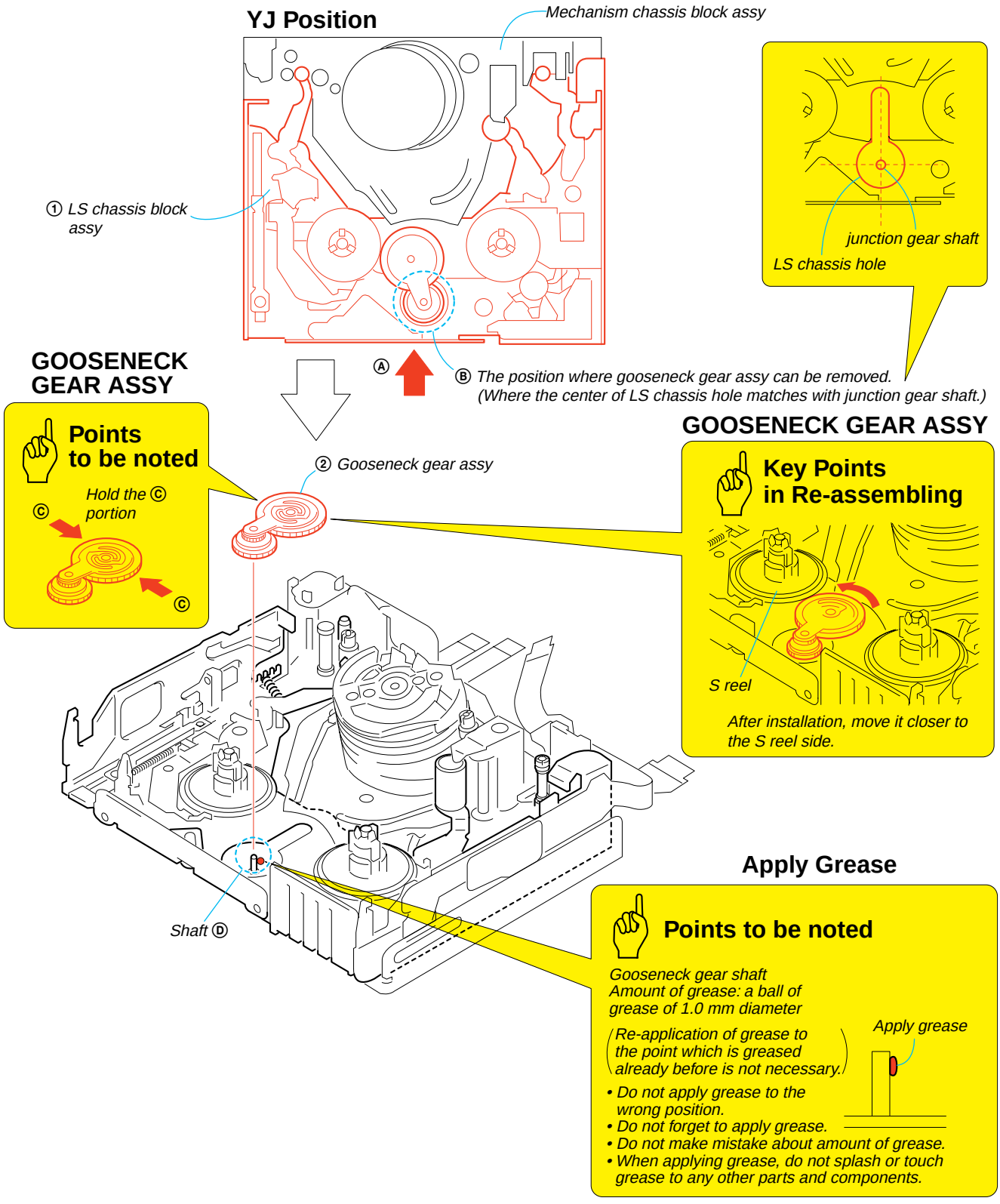
3-16. Gooseneck Gear Assy

1. Removal procedure

1) Move the LS chassis block assy ① in the direction of the arrow Ⓐ to make it in YJ position.
   YJ position: The position Ⓑ where gooseneck gear assy can be removed. (where the center of LS chassis hole matches with junction gear shaft.)
2) Remove the gooseneck gear assy, holding it with Ⓒ.

2. Attachment procedure

1) Apply grease to the gooseneck gear shaft Ⓓ portion.
   Amount of grease: a ball of grease of 1.0 mm diameter
   Need no re-application to one which applied already.
2) Install the gooseneck gear assy, holding it with Ⓒ in the gooseneck gear shaft.
3) Move it closer to the S reel.


YJ Position
Mechanism chassis block assy
① LS chassis block assy
junction gear shaft
LS chassis hole
Ⓐ
Ⓑ The position where gooseneck gear assy can be removed.
(Where the center of LS chassis hole matches with junction gear shaft.)
GOOSENECK GEAR ASSY
Points to be noted
Hold the Ⓒ portion
Ⓒ
Ⓒ
② Gooseneck gear assy
GOOSENECK GEAR ASSY
Key Points in Re-assembling
S reel
After installation, move it closer to the S reel side.
Shaft Ⓓ
Apply Grease
Points to be noted
Gooseneck gear shaft
Amount of grease: a ball of grease of 1.0 mm diameter
Re-application of grease to the point which is greased already before is not necessary.
Apply grease
• Do not apply grease to the wrong position.
• Do not forget to apply grease.
• Do not make mistake about amount of grease.
• When applying grease, do not splash or touch grease to any other parts and components.

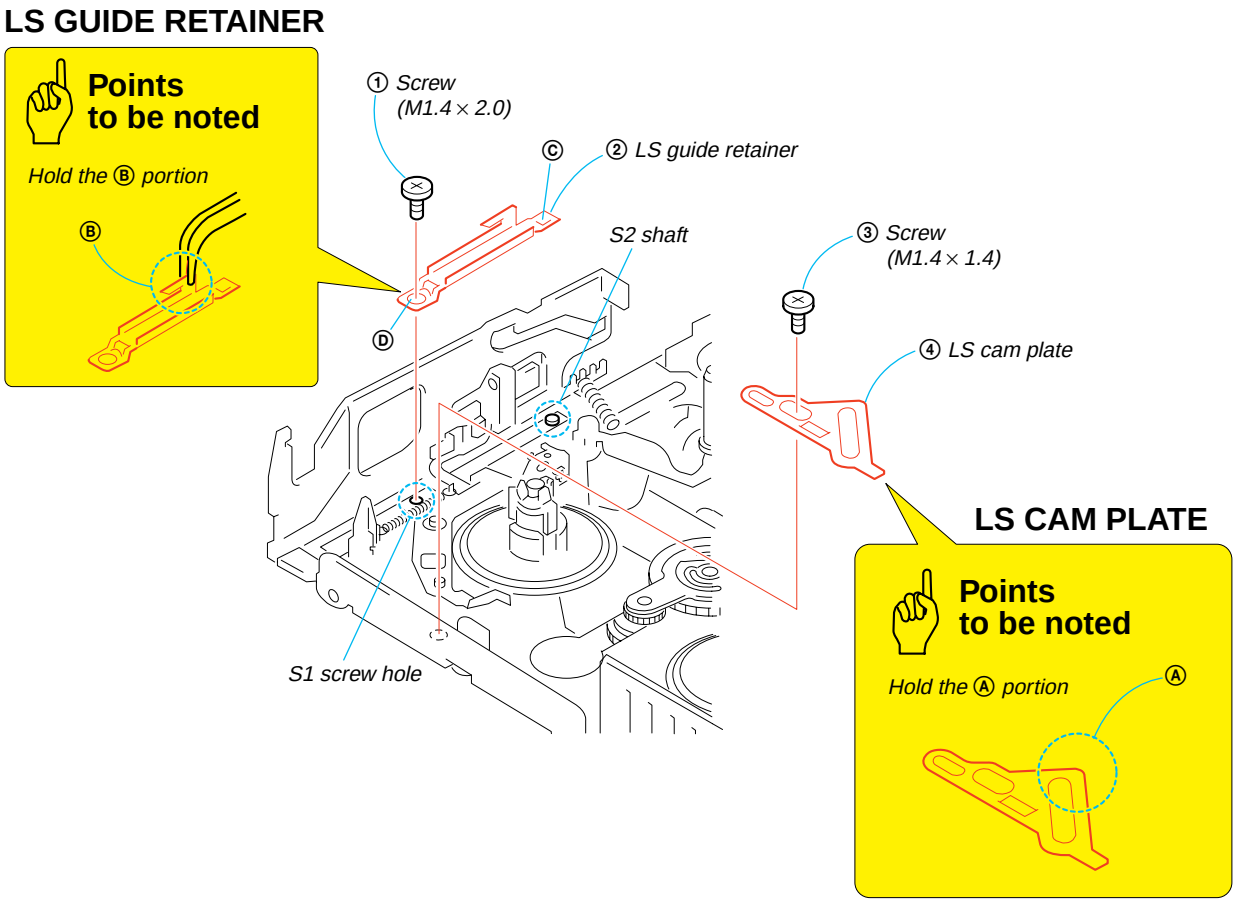
3-17. LS Guide Retainer and LS Cam Plate

1. Removal procedure

1) Remove the screw (special head screw M1.4 × 2.0) ①. and remove the LS guide retainer ②.
2) Remove the screw (special head screw M1.4 × 1.4) ③ and remove the LS cam plate ④.

2. Attachment procedure

1) Hold the LS cam plate with Ⓐ and place it aligning the two dowels. Tighten the screw (special head screw M1.4 × 1.4) ③ in half way.
2) Adjust the LS cam plate by referring to section 4-5.
3) Hold the LS guide retainer ② with Ⓑ and hook its key hole Ⓒ on the S2 shaft, and align the hole Ⓓ to S1 screw hole.
4) Install the screw (special head screw M1.4 × 2.0) ① in the S1 screw hole.
   Tightening torque: 0.059 ± 0.01N•m (0.6 ± 0.1kgf•cm)



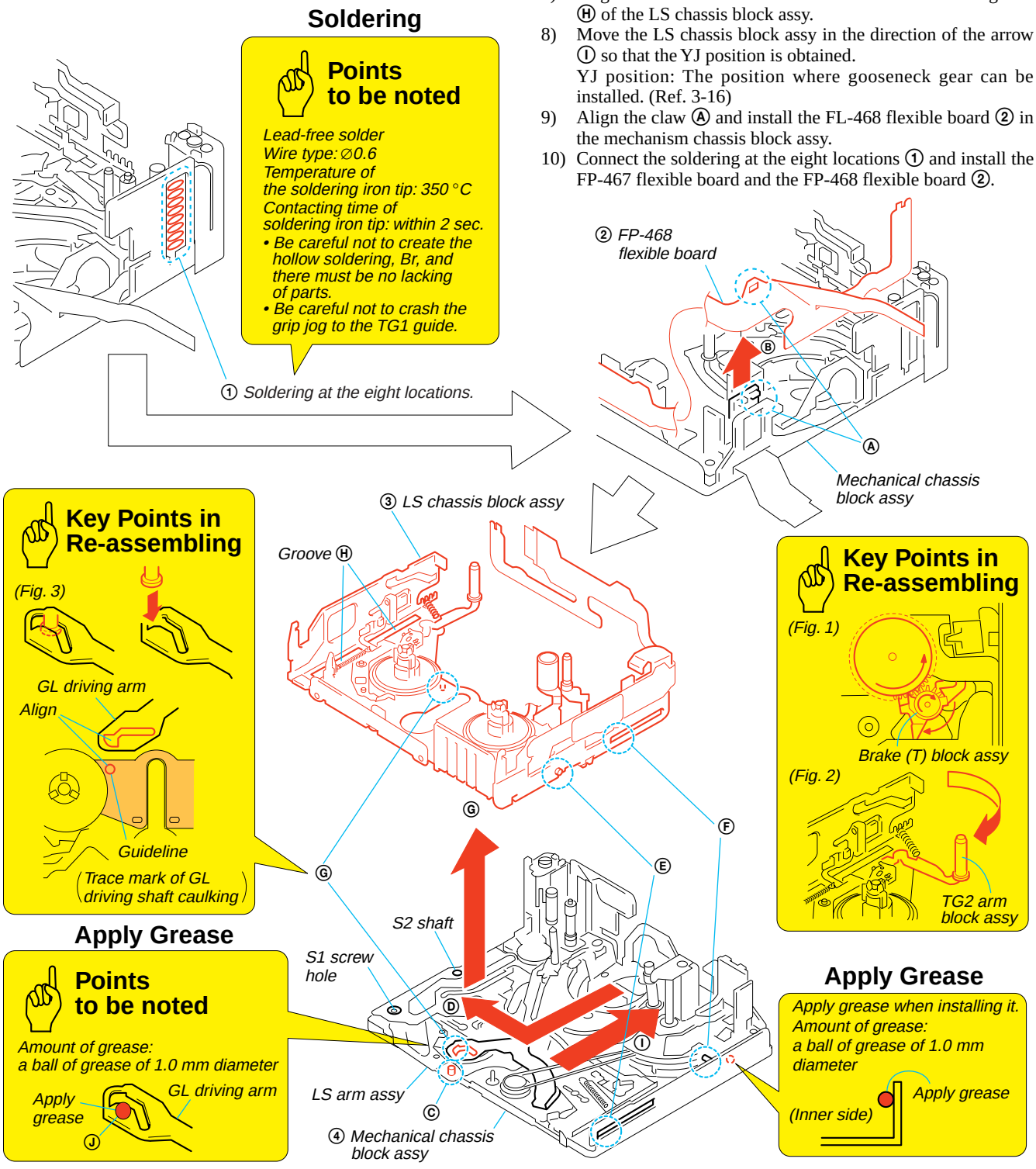
3-18. LS Chassis Block Assy and Mechanical Chassis Block Assy

1. Removal procedure

1) Remove soldering at the eight locations ①.
2) Release the claw Ⓐ and remove the FP-468 flexible board ② from the mechanical chassis block assy in the direction of the arrow Ⓑ.
3) Raise the front portion of the LS chassis block assy ③ so that the pin Ⓒ of the LS arm assy is removed. Move the LS chassis block assy ③ in the direction of the arrow Ⓓ and release the three pins of Ⓔ, Ⓕ and Ⓖ, and also groove.
4) Remove the LS chassis block ④ from the mechanical chassis block assy.

2. Attachment procedure

1) Apply grease to the GL drive arm Ⓙ portion and mechanism chassis block L.
   Amount of grease: a ball of grease of 1.0 mm diameter
2) Rotate the T reel table assy in the counter-clockwise direction and move the brake T block to the position shown in Fig. 1. (Fig. 1)
3) Move the TG2 arm block to the inner side. (Fig. 2)
4) Hold the cam groove of the GL driving arm with tweezers through LS chassis hole Ⓚ and pick it up.
5) Insert the GL drive shaft into the cam groove of the raised GL drive arm using the trace mark of caulking on the side of the S reel of the LS chassis block assy. (Fig. 3)
6) Align the pins Ⓔ, Ⓕ and Ⓖ with the grooves.
7) Align the left side S1 screw hole and S2 shaft with the goove Ⓗ of the LS chassis block assy.
8) Move the LS chassis block assy in the direction of the arrow Ⓘ so that the YJ position is obtained.
   YJ position: The position where gooseneck gear can be installed. (Ref. 3-16)
9) Align the claw Ⓐ and install the FL-468 flexible board ② in the mechanism chassis block assy.
10) Connect the soldering at the eight locations ① and install the FP-467 flexible board and the FP-468 flexible board ②.



3-19. Brake (T) Block Assy

1. Removal procedure

1) Hold the Ⓐ portion and remove the brake (T) block assy ①.

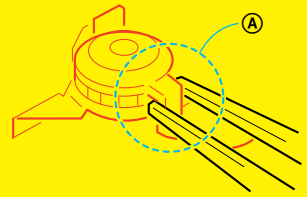
2. Attachment procedure

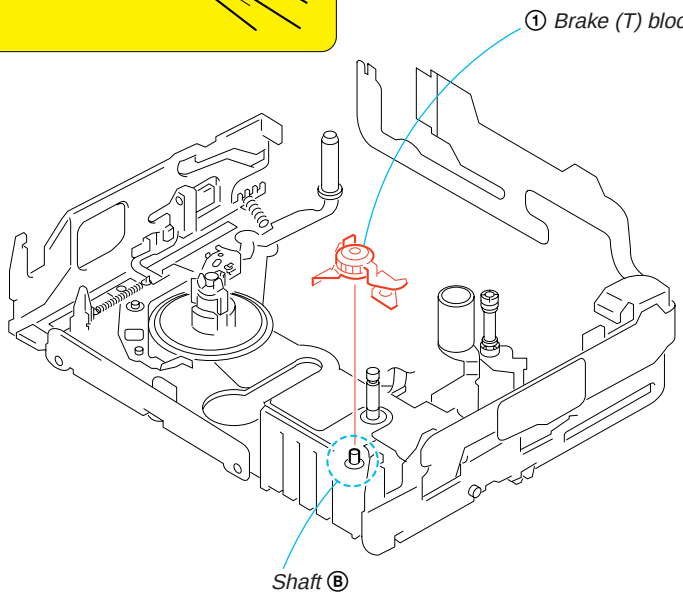
1) Hold the Ⓐ portion of the brake (T) block assy ①. While inserting the slot portion into the notch of the LS chassis block assy, install it into the shaft Ⓑ.
2) After completing installation of T reel table assy (Refer to 3-9.), rotate the brake (T) block assy ① in the clockwise direction by rotating T reel talbe assy in the counter-clockwise direction. (Fig. 1)

BRAKE (T) BLOCK ASSY

Points to be noted

Hold the Ⓐ portion

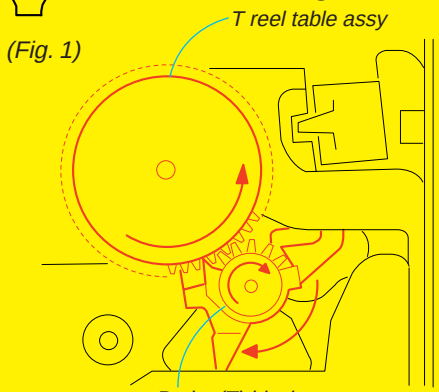




BRAKE (T) BLOCK ASSY

Key Points in Re-assembling

(Fig. 1)



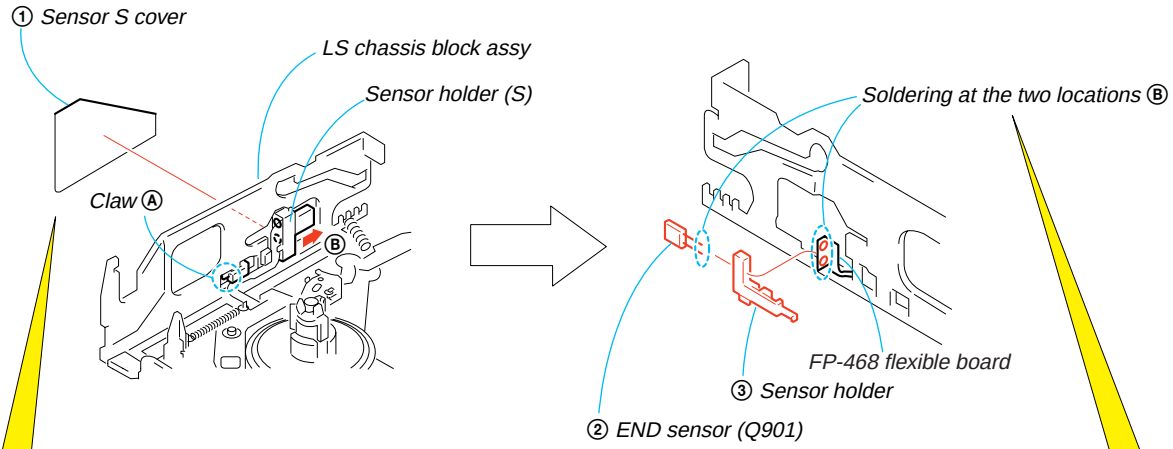
3-20. END Sensor (Q901)

1. Removal procedure

1) Peel off the sensor S cover ①.
2) Release the claw Ⓐ of the sensor holder (S) ③. Remove it from the LS chassis block assy by sliding it in the direction of the arrow Ⓑ.
3) Remove soldering at the two locations and remove the END sensor (Q901) ② and the sensor holder (S) ①.

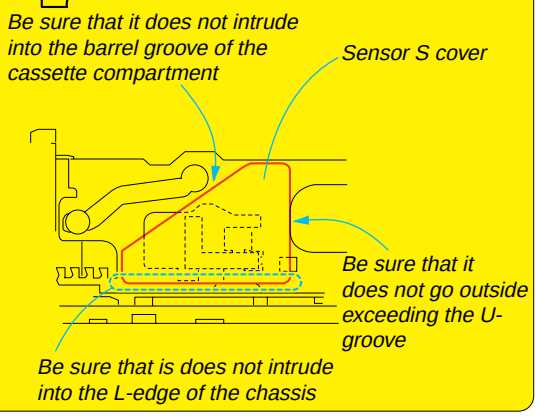
2. Attachment procedure

1) Connect the END sensor (Q901) ② and the sensor holder (S) ③ to the FP-468 flexible board by soldering them at the two locations Ⓑ.
2) Slide the END sensor (Q901) ② and the sensor holder (S) ③ in the direction of the arrow Ⓒ to install them in the LS chassis block assy.
3) Hook the flexible board on the end of the Ⓓ portion.
4) Attach the sensor S cover ①.



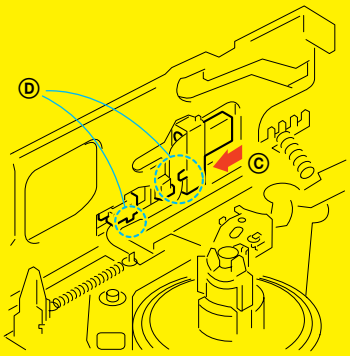
SENSOR S COVER

Key Points in Re-assembling


Be sure that it does not intrude into the barrel groove of the cassette compartment
Sensor S cover
Be sure that it does not go outside exceeding the U-groove
Be sure that is does not intrude into the L-edge of the chassis

END SENSOR (Q901), SENSOR HOLDER (S)

Key Points in Re-assembling



Soldering

Points to be noted

Use the rubber finger tip
cover Lead-free solder
Wire type : ∅0.6
Soldering iron : 941 made by Hakko
Soldering iron tip : T1-1BC

Temperature of the soldering iron tip : 300 ±10 °C
Contacting time of soldering iron tip : within 2 sec

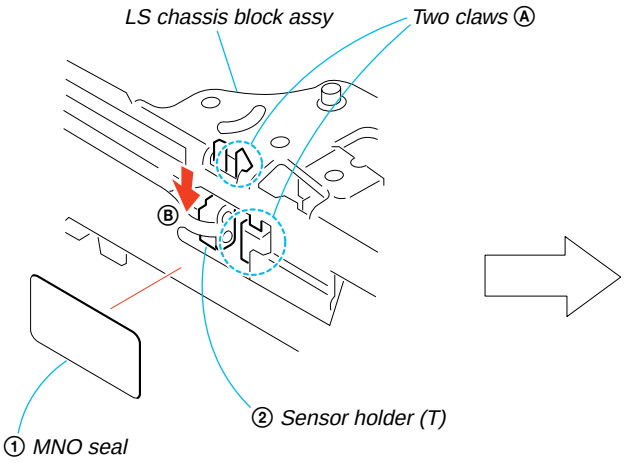
3-21. TOP Sensor (Q902)

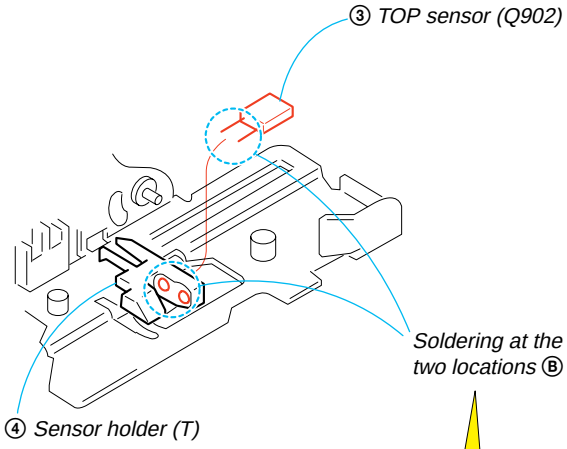
1. Removal procedure

1) Peel off the MNO seal ①.
2) Release the two claws of the sensor holder (T) ② at the two locations Ⓐ. Remove it from the LS chassis block assy by sliding it in the direction of the arrow Ⓑ.
3) Remove the soldering at the two locations Ⓑ and remove the TOP sensor (Q902) ③ and the sensor holder (T) ④.

2. Attachment procedure

1) Connect the TOP sensor (Q902) ③ and the sensor holder (T) ④ to the FP-468 flexible board by soldering them at the two locations Ⓑ.
2) Engage the two claws Ⓐ to install the TOP sensor (Q902) ③ and the sensor holder (T) ④ in the LS chassis block assy.
3) Attach the MNO seal ①.





Soldering

Points to be noted

Use the rubber finger tip cover
Lead-free solder
Wire type : ∅0.6
Soldering iron : 941 made by Hakko
Soldering iron tip : T1-1BC

Temperature of the soldering iron tip : 300 ±10 °C
Contacting time of soldering iron tip : within 2 sec

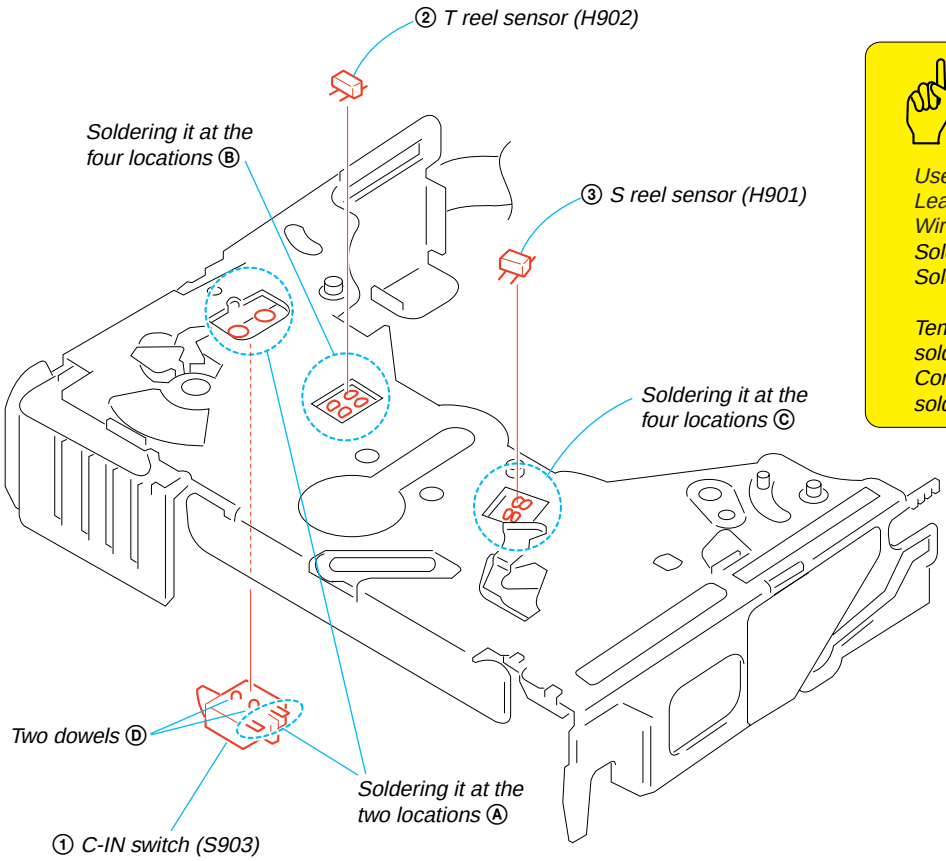
3-22. C-IN Switch (S903), S Reel Sensor (H901) and T Reel Sensor (H902)

1. Removal procedure

1) Remove soldering at the two locations Ⓐ and remove the C-IN switch (S903) ①.
2) Remove soldering at the four locations Ⓑ and remove the T reel sensor (H902) ②.
3) Remove soldering at the four locations Ⓑ and remove the S reel sensor (H901) ③.

2. Attachment procedure

1) Connect the S reel sensor (H901) ③ to the FP-468 flexible board by soldering it at the four locations Ⓒ.
2) Connect the T reel sensor (H902) ② to the FP-468 flexible board by soldering it at the four locations Ⓑ.
3) Align the two dowels Ⓓ and connect the C-IN switch (S903) ① to the FP-468 flexible board by soldering it at the two locations Ⓐ.


② T reel sensor (H902)
Soldering it at the four locations Ⓑ
③ S reel sensor (H901)
Soldering it at the four locations Ⓒ
Two dowels Ⓓ
Soldering it at the two locations Ⓐ
① C-IN switch (S903)

Soldering

Points to be noted

Use the rubber finger tip cover
Lead-free solder
Wire type : ∅0.6
Soldering iron : 941 made by Hakko
Soldering iron tip : T1-1BC

Temperature of the soldering iron tip : 300 ± 10 °C
Contacting time of soldering iron tip : within 2 sec

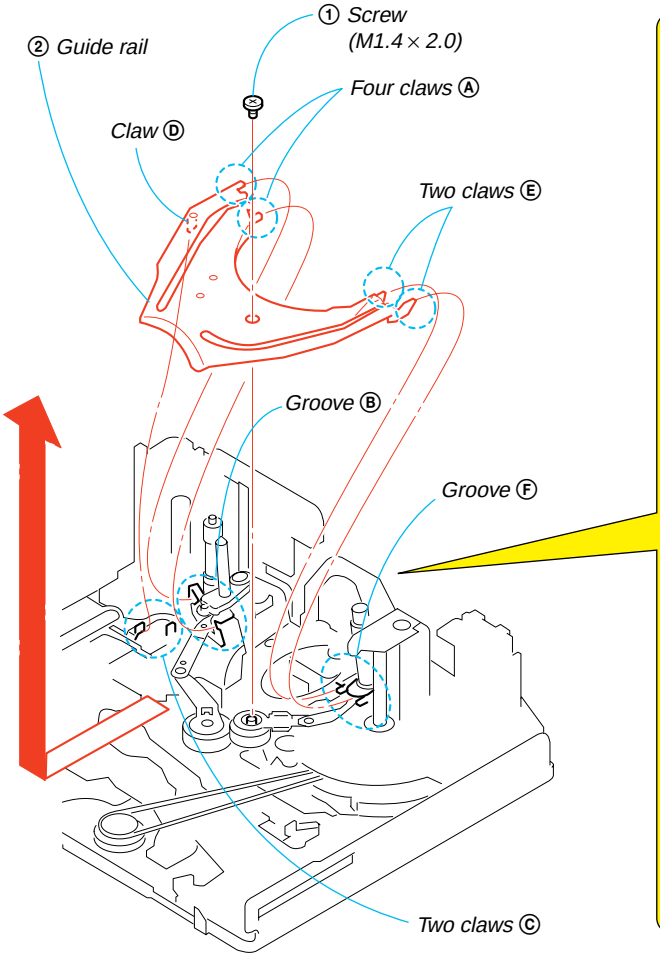
3-23. Guide Rail

1. Removal procedure

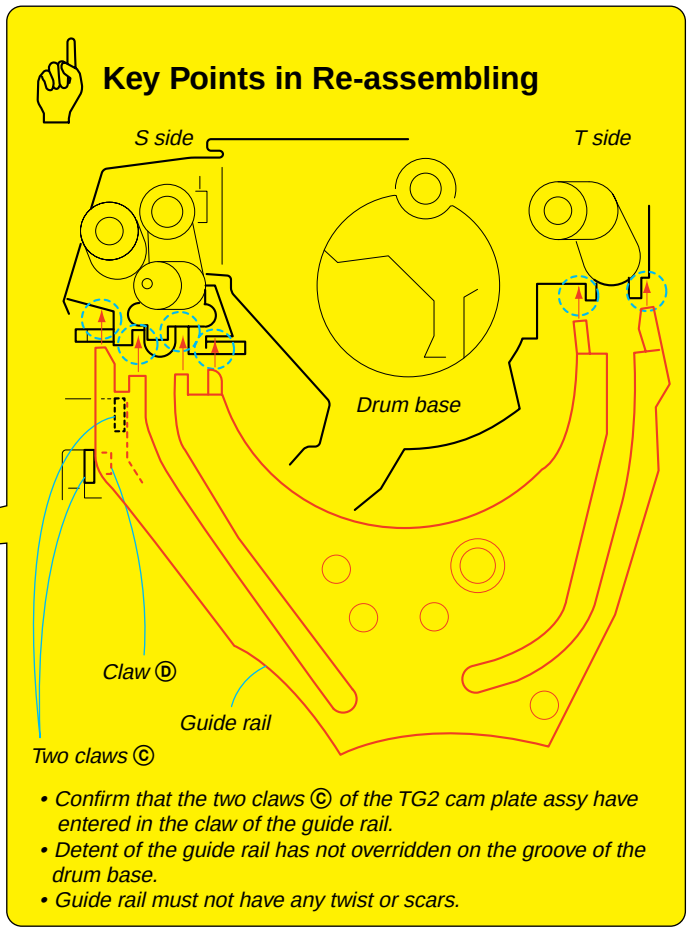
1) Remove the screw (special head screw M1.4 × 2.0) ①.
2) Remove the guide rail ② in the direction of the arrow.

2. Attachment procedure

1) Hold the center of the guide rail ②. While pressing the TG2 cam plate assy, insert the four claws Ⓐ of the guide rail in a slant angle from the top into the drum base's groove Ⓑ. (Insert the top tip of the rail at the same time.) Confirm at this time that the two claws of the TG cam plate assy have entered in the claw Ⓓ of the guide rail.
2) Insert the two claws Ⓔ of the T side guide rail into the groove Ⓕ of the drum base.
3) Tighten the screw (special head screw M1.4 × 2.0) ①.
Tightening torque: 0.059 ± 0.01N•m (0.6 ± 0.1kgf•cm)



GUIDE RAIL


Key Points in Re-assembling
S side
T side
Drum base
Claw Ⓓ
Guide rail
Two claws Ⓒ
• Confirm that the two claws Ⓒ of the TG2 cam plate assy have entered in the claw of the guide rail.
• Detent of the guide rail has not overridden on the groove of the drum base.
• Guide rail must not have any twist or scars.

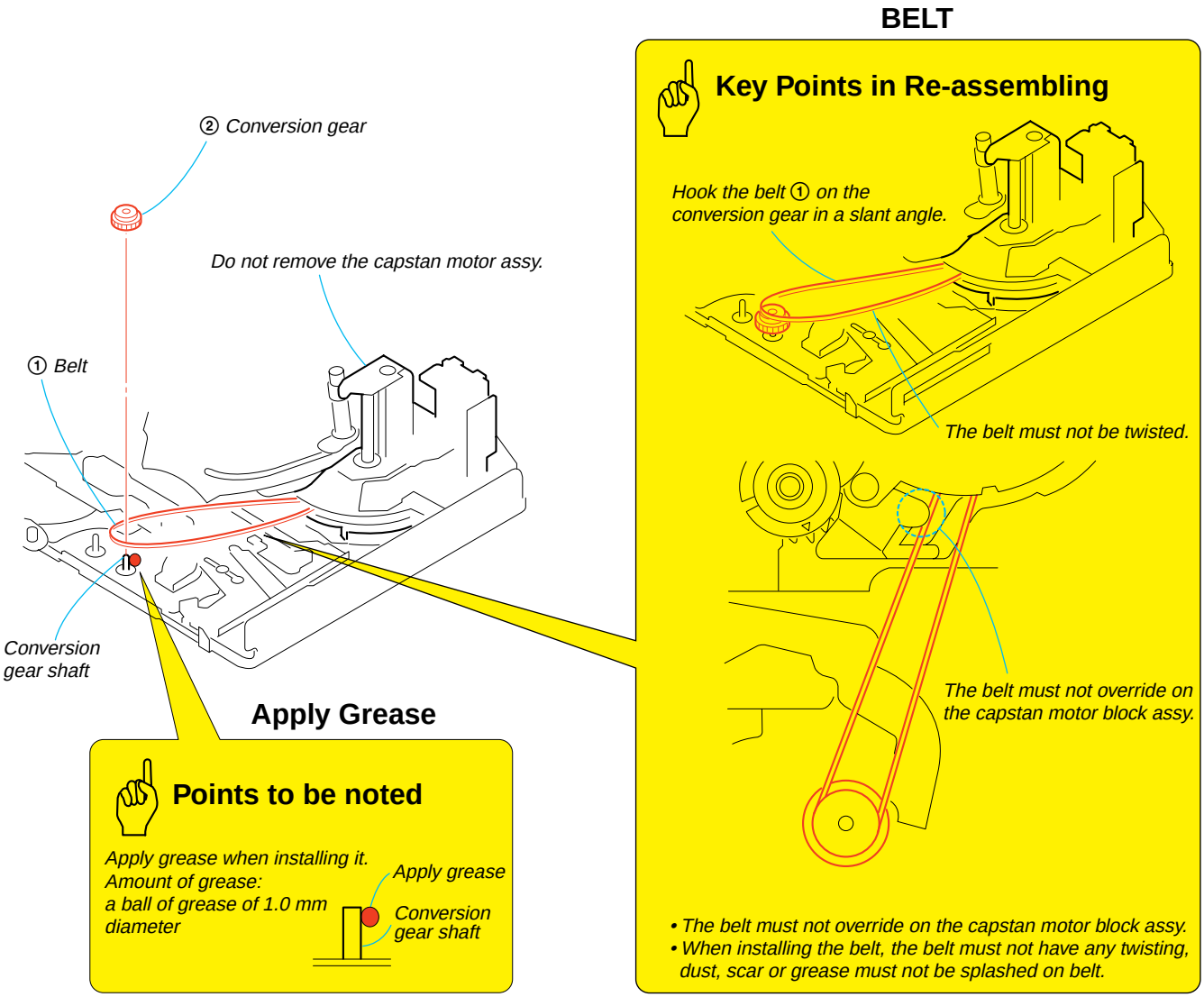
3-24. Conversion Gear

1. Removal procedure

1) Remove the belt ① from the conversion gear.
2) Remove the conversion gear ② from the conversion gear shaft.

2. Attachment procedure

1) Apply grease to the conversion gear shaft.
   Amount of grease: a ball of grease of 1.0 mm diameter
2) Install the conversion gear ② in the conversion gear shaft.
3) Hook the belt ① on the conversion gear in a slant angle and install it by rotating the conversion gear with fingertip.


② Conversion gear
Do not remove the capstan motor assy.
① Belt
Conversion gear shaft
Apply Grease
Points to be noted
Apply grease when installing it.
Amount of grease:
a ball of grease of 1.0 mm diameter
Apply grease
Conversion gear shaft
BELT
Key Points in Re-assembling
Hook the belt ① on the conversion gear in a slant angle.
The belt must not be twisted.
The belt must not override on the capstan motor block assy.
• The belt must not override on the capstan motor block assy.
• When installing the belt, the belt must not have any twisting, dust, scar or grease must not be splashed on belt.

3-25. Coaster (S) Block Assy and Coaster (T) Block Assy

1. Removal procedure

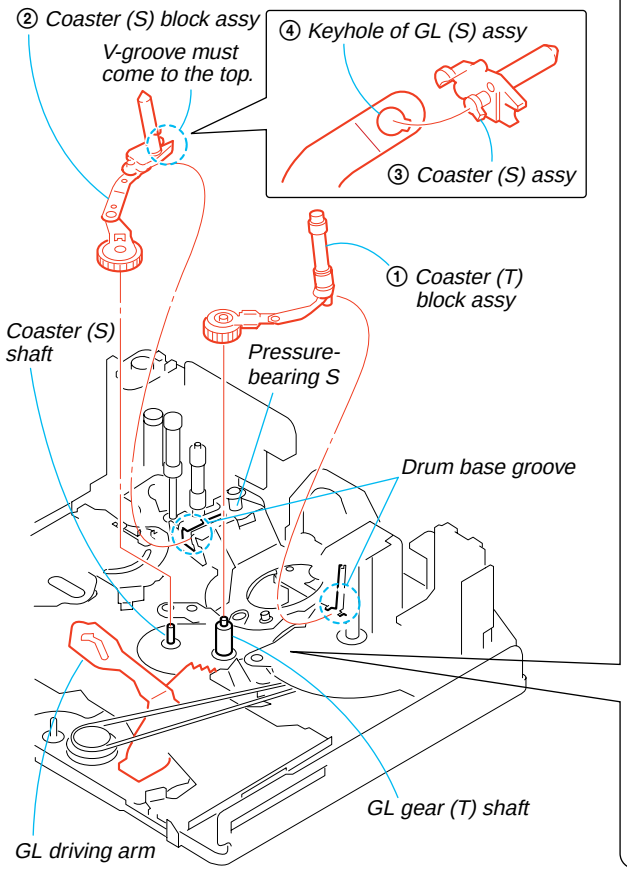
1) Remove the coaster (T) block assy ① from the coaster (T) block shaft. Remove the coaster (T) block assy from the right groove of the drum base.
2) Remove the coaster (S) block assy ② from the coaster (S) block shaft. Remove the coaster (S) block assy from the left groove of the drum base.
3) Remove coaster (S) assy ③ by rotating it through the key hole of GL (S) assy ④.

2. Attachment procedure

1) Install the coaster (S) assy ③ into the key hole of the GL (S) assy ④ by rotating it.
2) Insert the coaster (S) block assy ② into the coaster (S) block shaft. While aligning it with the left groove of the drum base, push it in the way that the V-groove comes to the top until it reaches the pressure-bearing S.
3) Push in the coaster (T) block assy ① along with the right groove of the drum base. Align the phase of the GL gear S, GL gear T and the GL drive arm at the three phasing locations. Then install the coaster (T) block assy ① in the coaster (T) block assy shaft.

Key Points in Re-assembling

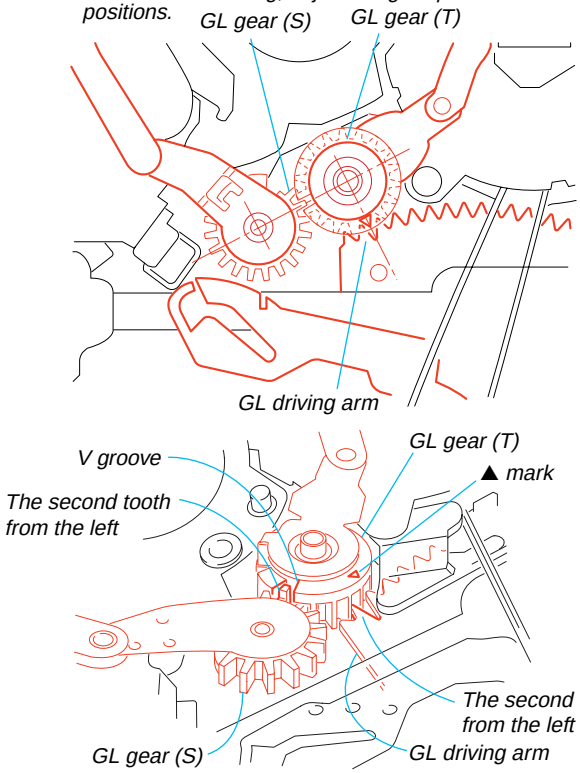
- *When aligning the coaster (S) assy with the left groove of the drum base, the V-groove must come to the top.*
- *TG4 and TG5 must not have any stain and their arms must not be deformed.*


② Coaster (S) block assy
V-groove must come to the top.
④ Keyhole of GL (S) assy
③ Coaster (S) assy
① Coaster (T) block assy
Coaster (S) shaft
Pressure-bearing S
Drum base groove
GL gear (T) shaft
GL driving arm

Phase Adjustment

Key Points in Re-assembling

When re-assembling, adjust the gear phase at the three positions.



- *The second tooth from the left of the GL gear (S) and the V-groove of the GL gear (T) must be in phase.*
- *The second tooth from the left of the GL drive arm and the ▲ mark must be in phase.*

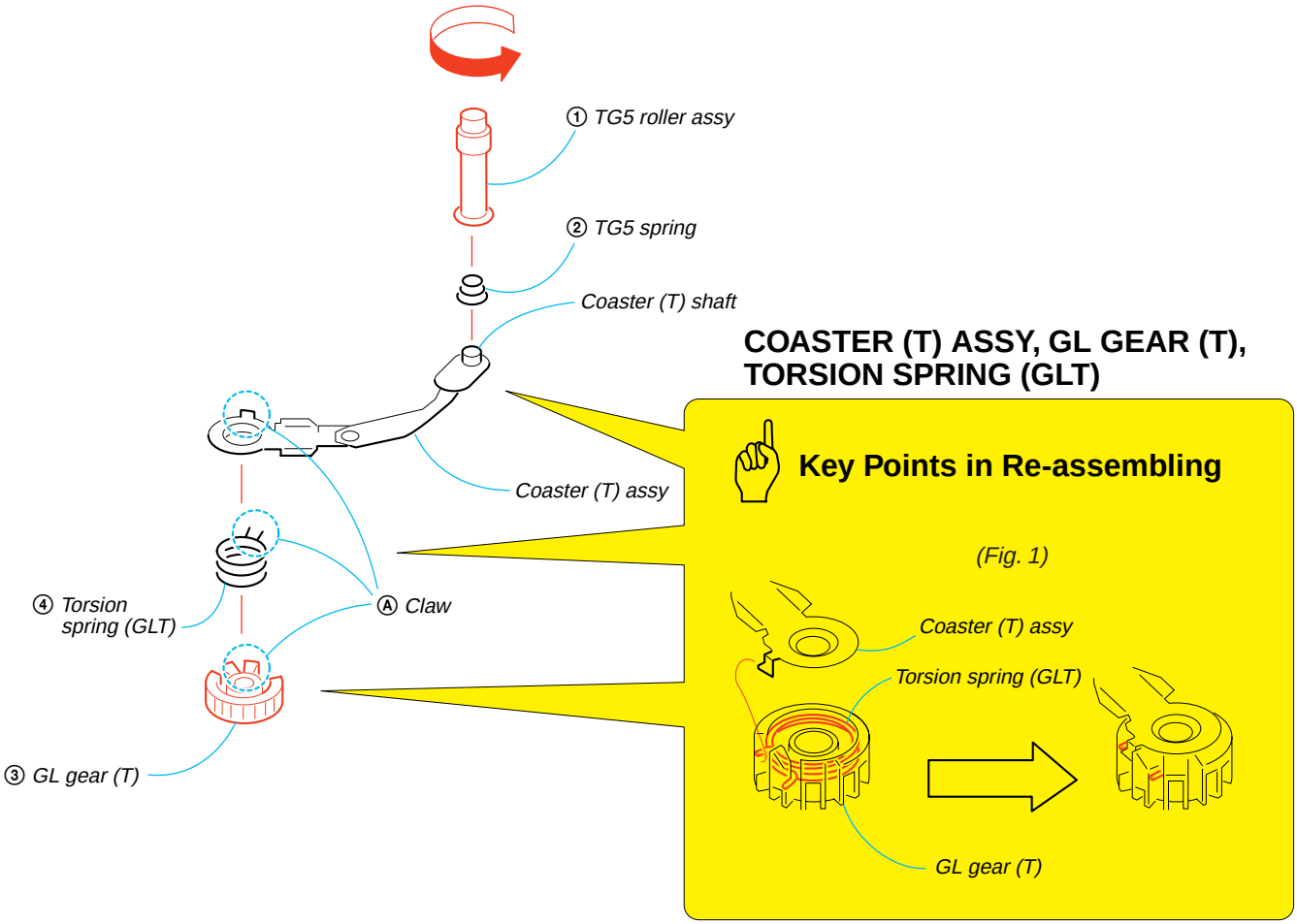
3-26. TG5 Roller Assy and GL Gear (T)

1. Removal procedure

1) Rotate the TG5 roller assy ① in the direction of the arrow and remove the TG5 roller assy ① and the TG5 spring ② from the coaster (T) assy.
2) Release the claw (A) and remove the GL gear (T) ③ and the torsion coil spring (GLT) ④ from the coaster (T) assy.

2. Attachment procedure

1) Install the GL gear (T) ③ and the torsion coil spring (GLT) ④ into the coaster (T) assy.
2) Install the TG5 spring ② into the coaster (T) assy.
3) Install the TG5 roller assy ① into the coaster (T) assy by rotating it in the direction opposite to the arrow.



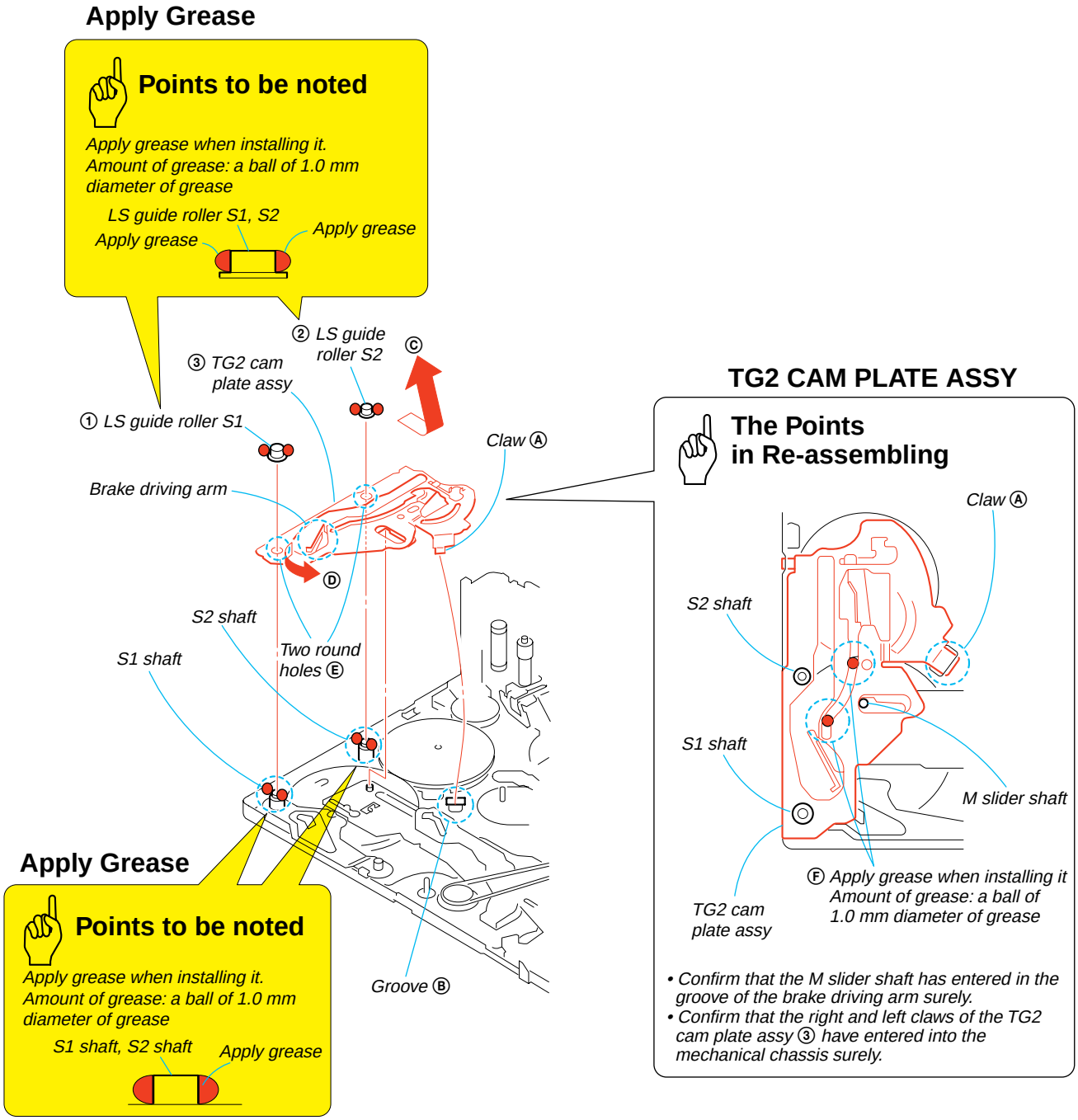
3-27. TG2 Cam Plate Assy

1. Removal procedure

1) Remove the LS guide roller (S1) ① from the S1 shaft.
2) Remove the LS guide roller (S2) ② from the S2 shaft.
3) Release the claw Ⓐ of the TG2 cam plate assy ③ from the right groove Ⓑ of the mechanical chassis.
4) Remove the TG2 cam plate assy ③ in the direction of the arrow Ⓒ.

2. Attachment procedure

1) Move the brake driving arm of the TG2 cam plate assy ③ in the direction of the arrow Ⓓ.
2) Insert the right claw Ⓐ of the TG2 cam plate assy ③ into the right groove Ⓑ of the mechanical chassis first.
3) Install the two round holes Ⓔ of the TG2 cam plate assy ③ into the S1 shaft and the S2 shaft.
4) Apply grease in the Ⓕ portion of the TG2 cam plate assy.
   Amount of grease: a ball of 1.0 mm diameter of grease
5) Apply grease to both sides of the S1 shaft and the S2 shaft.
   Amount of grease: a ball of 1.0 mm diameter of grease
6) Apply grease to both sides of the LS guide roller S1, S2.
7) Install the LS guide roller S1 ① in the S1 shaft.
8) Install the LS guide roller S2 ② in the S2 shaft.


Apply Grease
Points to be noted
Apply grease when installing it.
Amount of grease: a ball of 1.0 mm diameter of grease
LS guide roller S1, S2
Apply grease
Apply grease
② LS guide roller S2
Ⓒ
③ TG2 cam plate assy
① LS guide roller S1
Claw Ⓐ
Brake driving arm
Ⓓ
S2 shaft
S1 shaft
Two round holes Ⓔ
Groove Ⓑ
Apply Grease
Points to be noted
Apply grease when installing it.
Amount of grease: a ball of 1.0 mm diameter of grease
S1 shaft, S2 shaft
Apply grease
TG2 CAM PLATE ASSY
The Points in Re-assembling
Claw Ⓐ
S2 shaft
S1 shaft
M slider shaft
Ⓕ Apply grease when installing it
Amount of grease: a ball of 1.0 mm diameter of grease
TG2 cam plate assy
• Confirm that the M slider shaft has entered in the groove of the brake driving arm surely.
• Confirm that the right and left claws of the TG2 cam plate assy ③ have entered into the mechanical chassis surely.

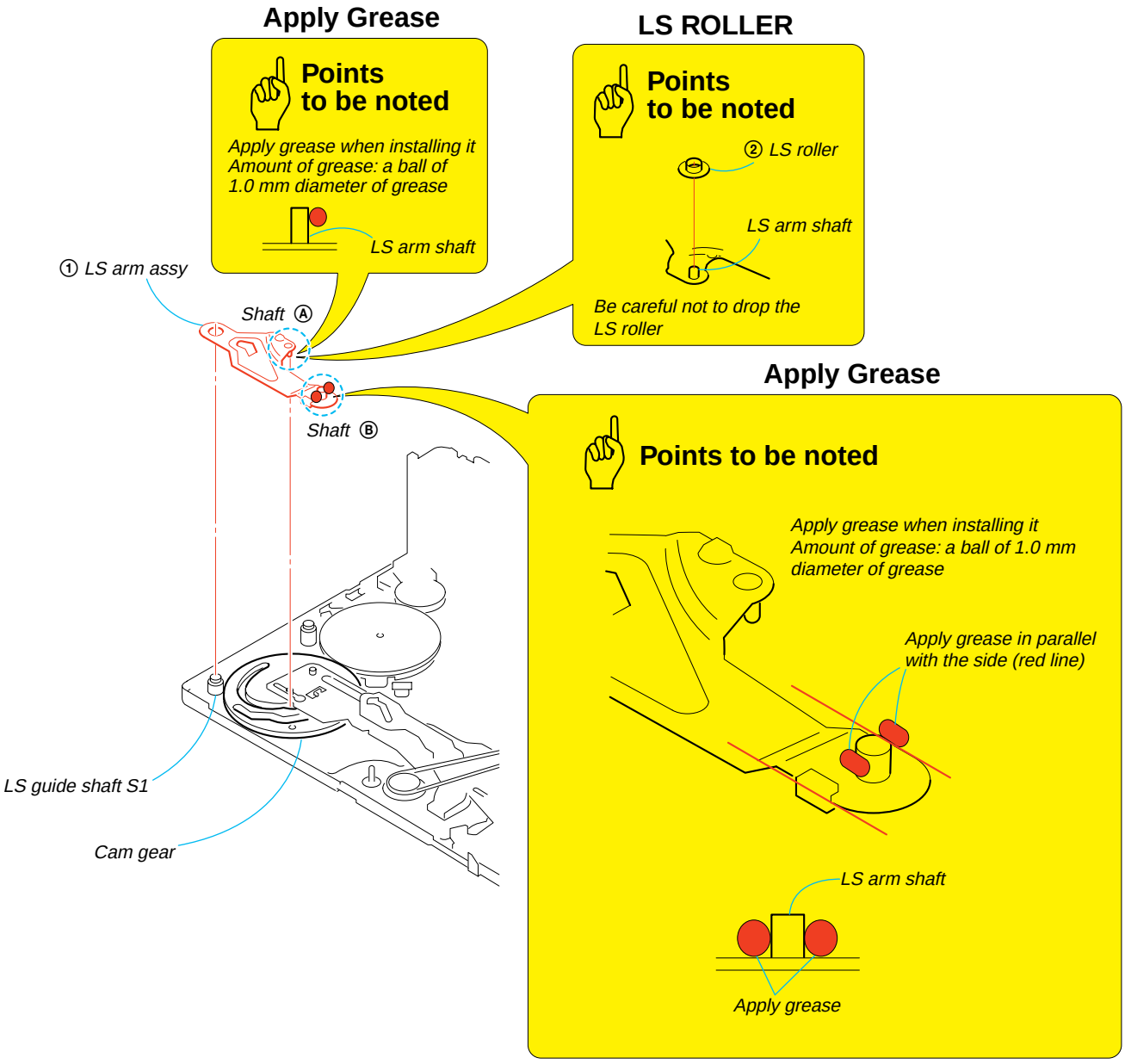
3-28. LS Arm Assy

1. Removal procedure

1) Remove the LS arm assy ① from the LS guide S1 shaft.
2) Turn over the LS arm assy and remove the LS roller ②.

2. Attachment procedure

1) Apply grease to the LS arm shaft Ⓐ (on the side).
2) Install the LS roller ② into the LS arm shaft.
3) Turn over the LS arm assy ① and install it while matching the phase of the LS guide shaft S1 and the cam gear groove.
4) Apply grease to the LS arm shaft Ⓑ (on its side).


Apply Grease
Points to be noted
Apply grease when installing it
Amount of grease: a ball of 1.0 mm diameter of grease
LS arm shaft
LS ROLLER
Points to be noted
② LS roller
LS arm shaft
Be careful not to drop the LS roller
① LS arm assy
Shaft Ⓐ
Shaft Ⓑ
Apply Grease
Points to be noted
Apply grease when installing it
Amount of grease: a ball of 1.0 mm diameter of grease
Apply grease in parallel with the side (red line)
LS arm shaft
Apply grease
LS guide shaft S1
Cam gear

3-29. M Slider Assy (1)

1. Removal procedure

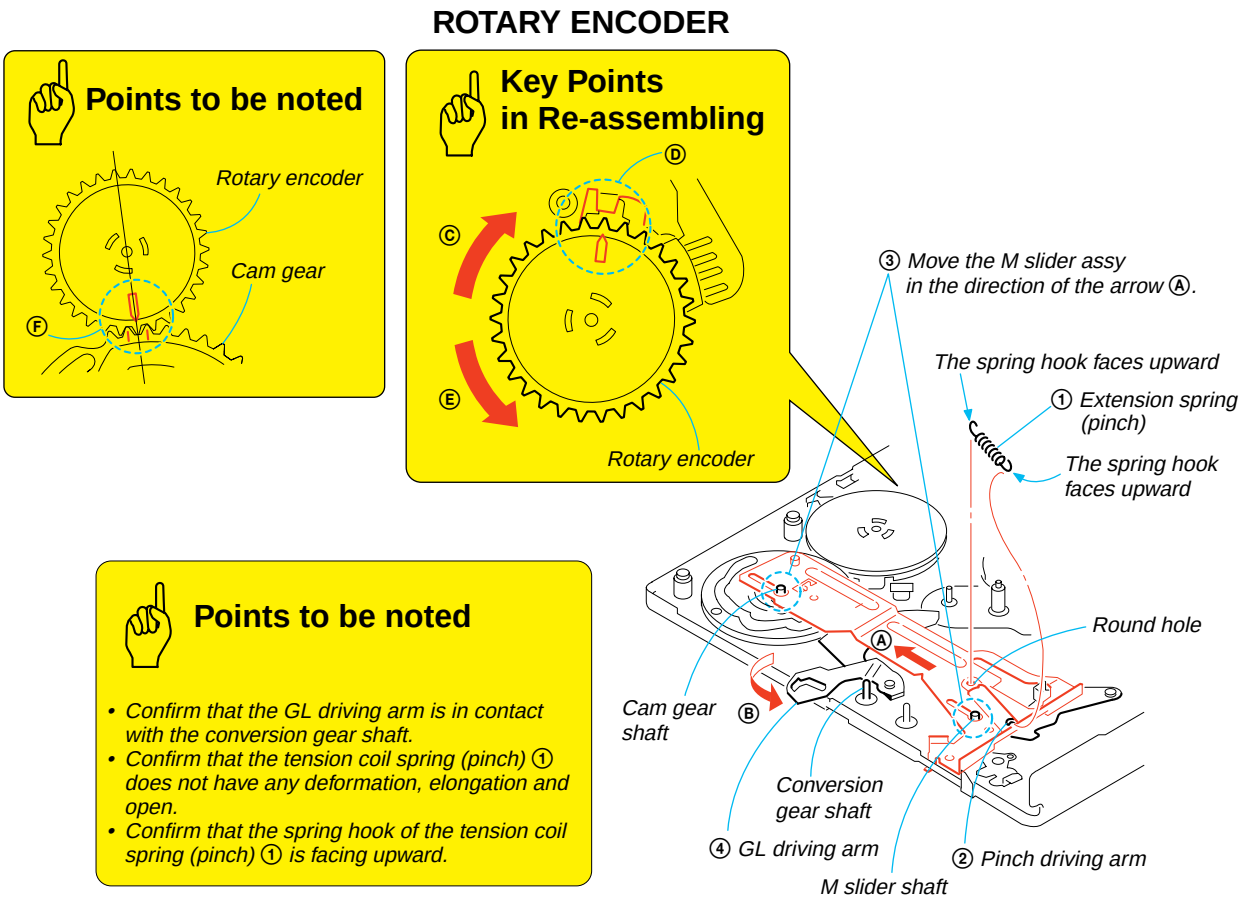
1) Remove an end of the tension spring (pinch) ① from the round hole of the M slider.
2) Remove another end of the tension spring (pinch) ① from the pinch driving arm ②.
3) Rotate the rotary encoder in the direction of the arrow Ⓔ, and align the ▲ mark of ratary encoder with the tooth bottom between second and third teeth Ⓕ. Move by hand in the direction of the arrow Ⓐ until the cam gear shaft and M slider shaft match with the shaft hole of the M slider assy ③.
4) Push in the direction of the arrow Ⓑ until the GL driving arm ④ gets in contact with the conversion gear shaft.

(to be continued to next items 5) through 7) on next page)

2. Attachment procedure

(continued from the previous items 1) through 5) on next page)

6) Move the conversion gear shaft in the direction opposite tot he arrow mark Ⓑ as far as it can go.
7) Rotate the rotary encoder in the direction of the arrow Ⓒ until the ▲ mark arrives at the position Ⓓ.
8) Install an end of the tension coil spring (pinch) ① on the pinch driving arm ② (in the way that spring hook faces upward).
9) Install another end of the tension coil spring (pinch) ① on the round hole of the M slider (in the way that spring hook faces upward).


ROTARY ENCODER
Points to be noted
Rotary encoder
Cam gear
Ⓕ
Key Points in Re-assembling
Ⓓ
Ⓒ
Ⓔ
Rotary encoder
③ Move the M slider assy in the direction of the arrow Ⓐ.
The spring hook faces upward
① Extension spring (pinch)
The spring hook faces upward
Round hole
Cam gear shaft
Ⓑ
Conversion gear shaft
④ GL driving arm
② Pinch driving arm
M slider shaft
Points to be noted
• Confirm that the GL driving arm is in contact with the conversion gear shaft.
• Confirm that the tension coil spring (pinch) ① does not have any deformation, elongation and open.
• Confirm that the spring hook of the tension coil spring (pinch) ① is facing upward.

3-30. M Slider Assy (2)

1. Removal procedure

(continued from the previous items 1) through 5) on previous page)

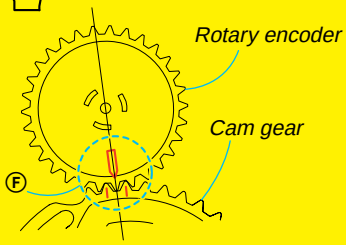
5) Remove the cam gear shaft and the M slider shaft from the two shaft holes Ⓐ of the M slider assy ①.
6) Remove the top tip Ⓑ of the M slider assy ① from the notch of the mechanical chassis in the direction of the arrow.
7) Remove the M slider assy ①.

2. Attachment procedure

1) Apply grease to the cam gear shaft and the M slider shaft (neck groove of the shaft where the M slider slides).
   Amount of grease: a ball of 1.0 mm diameter of grease
2) Align the hole of the pinch driving arm and the hole of the mechanical chassis.
3) Insert the top tip Ⓑ of the M slider assy ① into the notch of the mechanism chassis, and at the same time install the M slider assy ① into the GL driving arm.
4) Align the ▲ mark of rotary encoder with the tooth bottom between second and third teeth Ⓕ.
5) Install the cam gear shaft and the M slider shaft into the tow shaft holes Ⓐ of the M slider assy.

(to be continued to next items 6) through 9) on previous page)

Points to be noted



M SLIDER ASSY

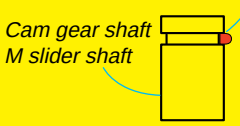
Key Points in Re-assembling

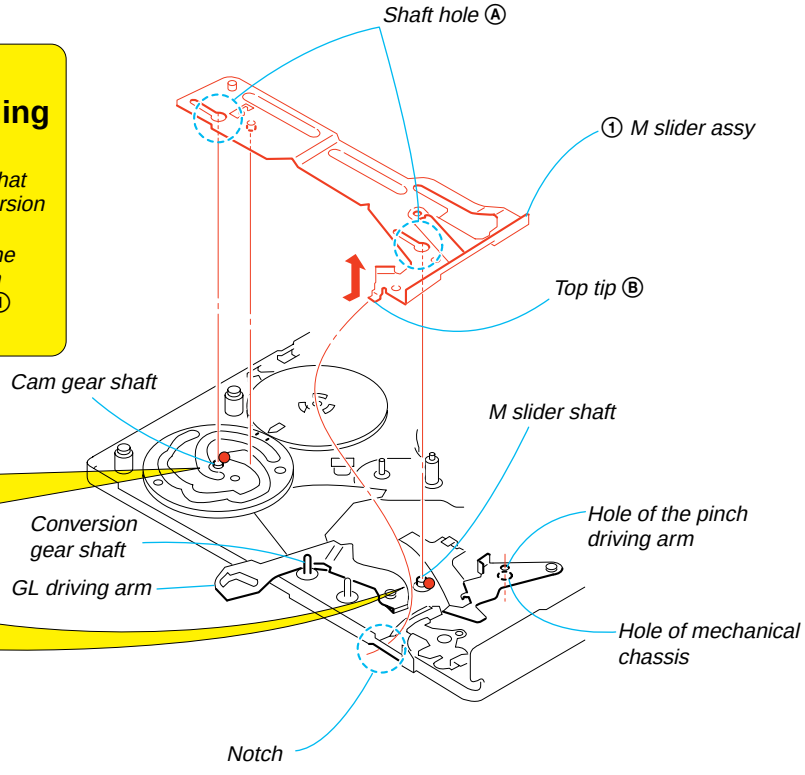
- *When installing the M slider assy ①, confirm that the GL driving arm is in contact with the conversion gear shaft.*
- *Confirm that you have not forgotten to insert the top tip Ⓑ of the M slider assy ① into the notch of the mechanical chassis. The M slider assy ① should not have any deformation.*

Apply Grease

Points to be noted

Apply grease when installing it
Amount of grease: a ball of 1.0 mm diameter of grease
Neck groove of the shaft where the M slider slides





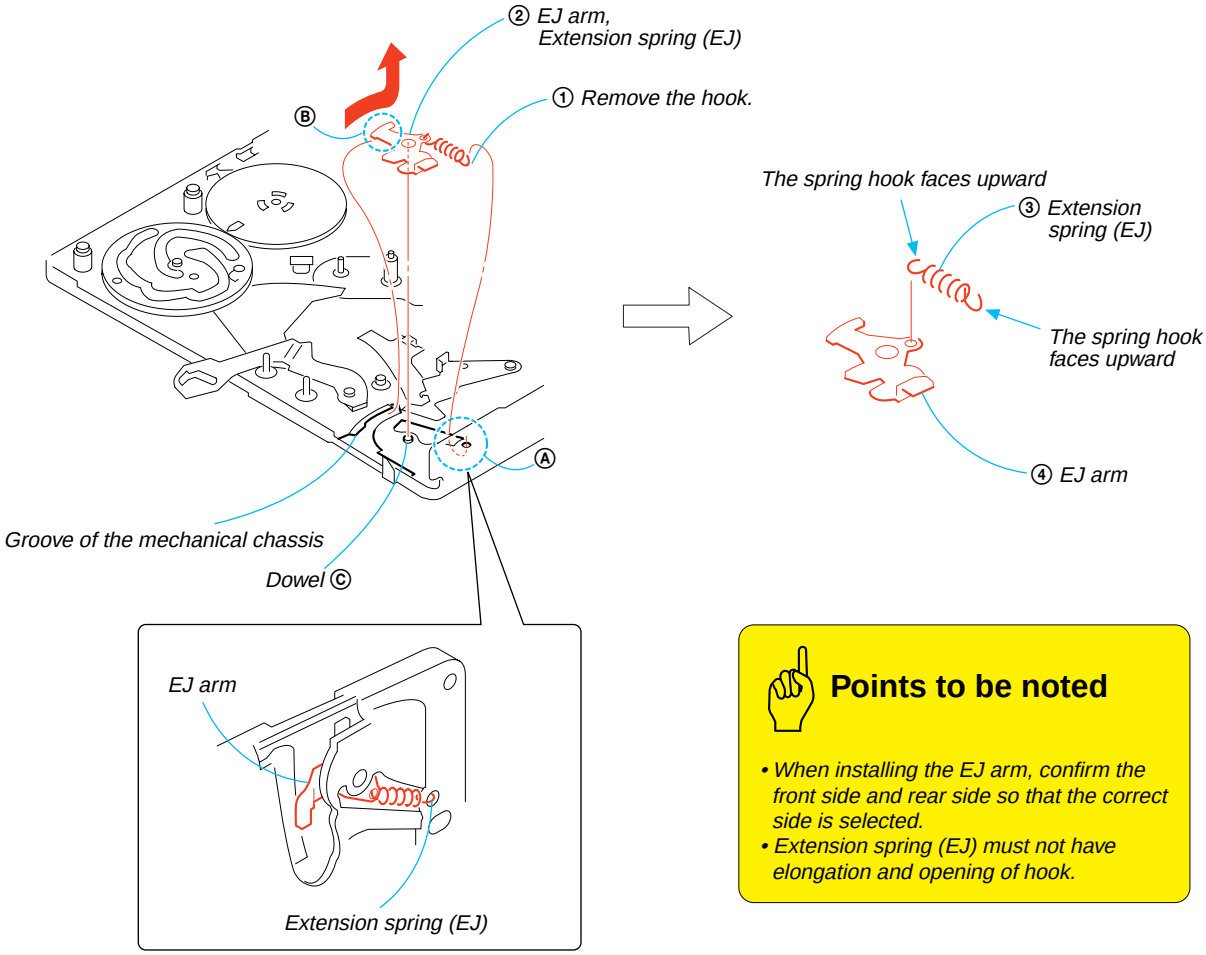
3-31. EJ Arm

1. Removal procedure

1) Remove the hook ① of the tension coil spring (EJ arm) ③ that is hooked on the round hole Ⓐ.
2) Remove the EJ arm and the tension coil spring (EJ arm) ② all together in the direction of the arrow.
3) Remove the tension coil spring (EJ arm) ③ from the EJ arm ④.

2. Attachment procedure

1) Install the tension coil spring (EJ arm) ③ into the round hole of the EJ arm ④ with the hook facing upward.
2) Insert the top tip (bent) portion Ⓑ of the EJ arm ④ into the groove of the mechanical chassis. Insert the dowel Ⓒ into the round hole of the EJ arm.
3) Insert he tension coil spring ① into the round hole Ⓐ of the mechanical chassis with the hook facing upward.



Points to be noted

- *When installing the EJ arm, confirm the front side and rear side so that the correct side is selected.*
- *Extension spring (EJ) must not have elongation and opening of hook.*

3-32. Cam Gear and GL Driving

1. Removal procedure

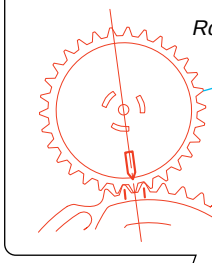
1) Rotate the GL driving arm Ⓗ block assy in the direction of the arrow Ⓘ until it contacts with the conversion gear shaft.
2) Remove the cam gear ②.
3) Remove the GL driving arm ③.

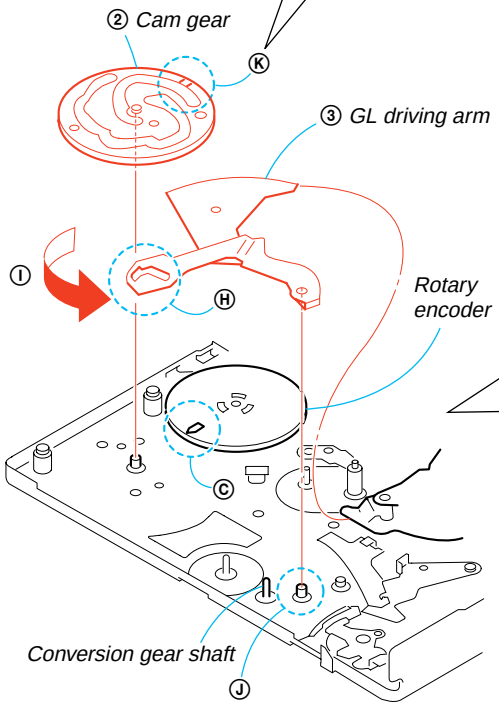
2. Attachment procedure

1) Insert the GL driving arm ③ into the shaft Ⓙ of the mechanical chassis and rotate the GL driving arm Ⓗ block assy in the direction of the arrow Ⓘ until it contacts with the conversion gear shaft.
2) Confirm the front side and rear side of the cam gear ② so that the correct side is selected. Install the cam gear ② while matching phase of the ▲ mark Ⓒ with the second tooth valley Ⓚ and the third tooth valley Ⓚ of the cam gear.
3) Apply grease to the specified locations Ⓐ to Ⓖ of the cam gear.

Matching Phase

Key Points in Re-assembling



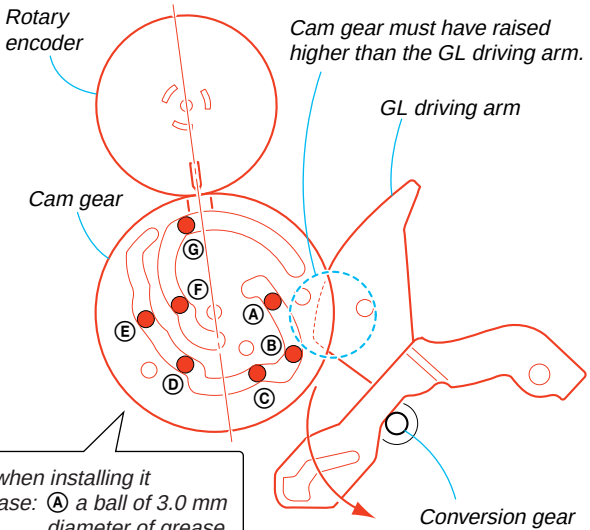


Points to be noted

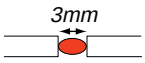
- *Confirm that the phase of the cam gear and that of the rotary encoder are matched and in phase.*
- *Confirm that the cam gear overrides on the GL driving arm.*
- *Confirm that the GL driving arm is contact with the conversion shaft.*
- *Do not apply grease to any locations other than the specified location. Apply grease of the specified amount.*

Notes When Applying Grease and During Installation

Key Points in Re-assembling



Apply grease when installing it
Amount of grease: Ⓐ a ball of 3.0 mm diameter of grease Ⓑ to Ⓖ a ball of 2.0 mm diameter of grease



Sides of the both grooves

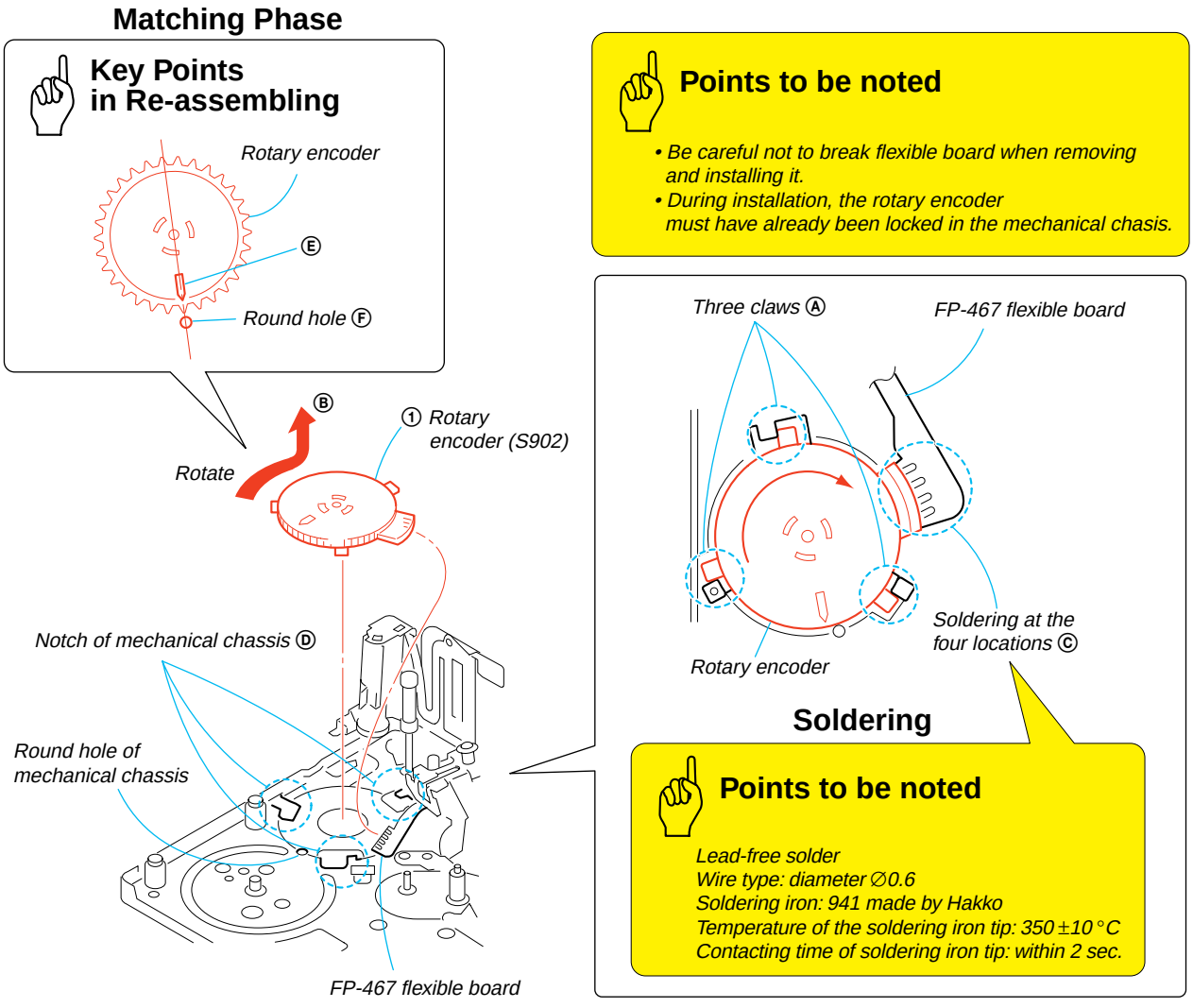
3-33. Rotary Encoder (S902)

1. Removal procedure

1) Remove the three claws Ⓐ of the rotary encoder (S902) ① from the three notches of the mechanical chassis.
2) Rotate the rotary encoder (S902) ① in the direction of the arrow Ⓑ and remove.
3) Remove soldering (at the four locations) Ⓒ to which the rotary encoder (S902) is attached.

2. Attachment procedure

1) Make soldering (at the four locations) Ⓒ so that the rotary encoder (S902) ① is connected to the FP-467 flexible board.
2) Place the rotary encoder (S902) ① on top of the notch Ⓓ of the mechanical chassis. Lock the three claws Ⓐ of the rotary encoder (S902) ① into the notches Ⓓ of the mechanical chassis.
3) Match the phase of the ▲ mark Ⓔ of the rotary encoder (S902) ① with the phase of the round hole Ⓕ of the mechanical chassis.


Matching Phase
Key Points in Re-assembling
Rotary encoder
Ⓔ
Round hole Ⓕ
Ⓑ
① Rotary encoder (S902)
Rotate
Notch of mechanical chassis Ⓓ
Round hole of mechanical chassis
FP-467 flexible board
Points to be noted
• Be careful not to break flexible board when removing and installing it.
• During installation, the rotary encoder must have already been locked in the mechanical chasis.
Three claws Ⓐ
FP-467 flexible board
Soldering at the four locations Ⓒ
Rotary encoder
Soldering
Points to be noted
Lead-free solder
Wire type: diameter ∅0.6
Soldering iron: 941 made by Hakko
Temperature of the soldering iron tip: 350 ±10 °C
Contacting time of soldering iron tip: within 2 sec.

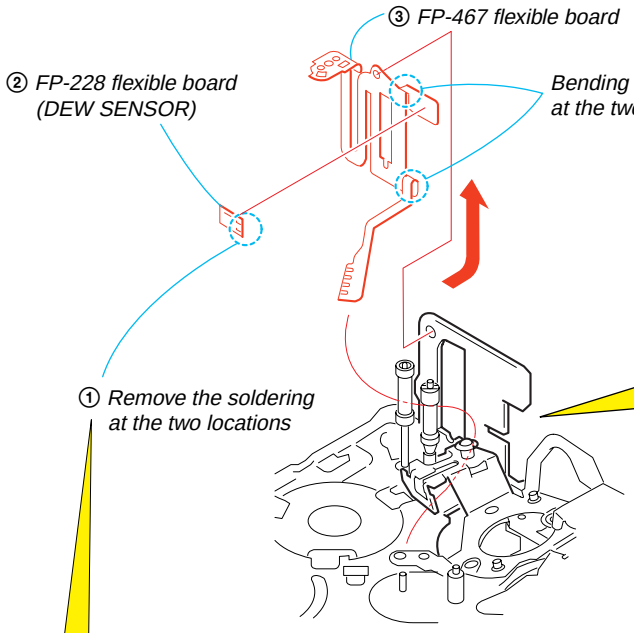
3-34. FP-228 Flexible Board (DEW SENSOR) and FP-467 Flexible Board

1. Removal procedure

1) Remove the soldering at the two locations ① and remove the FP-228 flexible board (DEW SENSOR) ②.
2) Remove the FP-467 flexible board ③ from the mechanical chassis in the direction of the arrow.

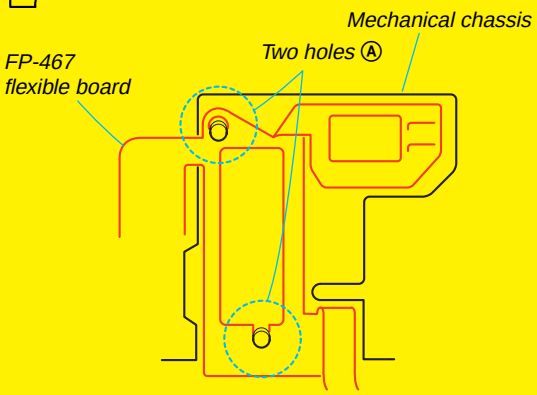
2. Attachment procedure

1) Match the phase of the two holes Ⓐ of the FP-467 flexible board ③ with the holes of the mechanical chassis, and attach them each other.
2) Attach the FP-228 flexible board (DEW SENSOR) ② to the FP-467 flexible board ③.
3) Connect the terminals at the two locations ① by soldering.


③ FP-467 flexible board
② FP-228 flexible board (DEW SENSOR)
Bending the flexible board at the two locations
① Remove the soldering at the two locations

FP-467 FLEXIBLE BOARD

Key Points in Re-assembling



Soldering

Points to be noted

Lead-free solder
Temperature of the soldering iron tip: 350 °C
Contacting time of soldering iron tip: within 2 sec.

- *Be careful not to create the hollow soldering, Br, and there must be no lacking of parts. There must not be solder ball.*
- *Be careful not to contact the soldering iron tip too long time.*

Points to be noted

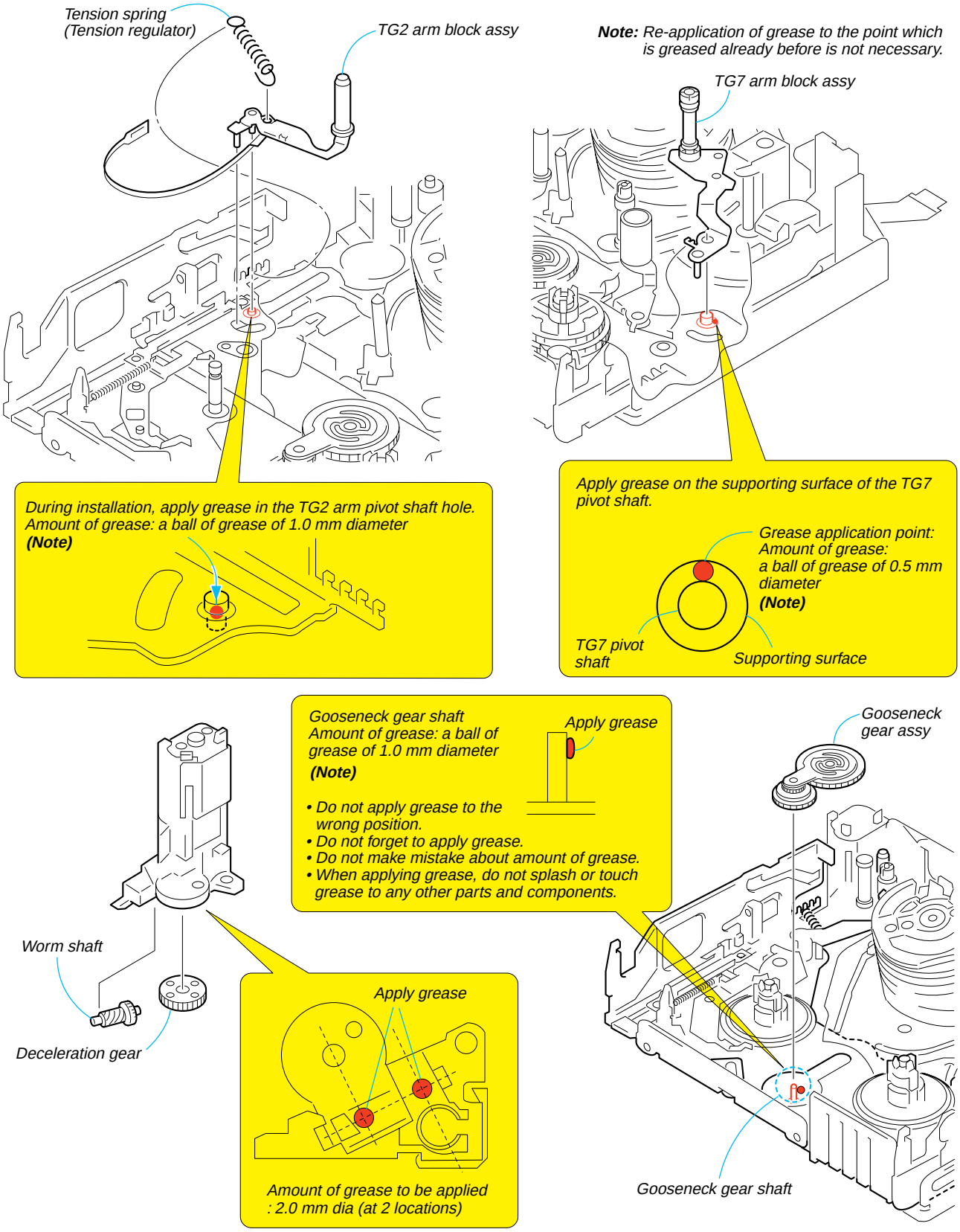
- *Be careful not to break the flexible board to have open circuit when installing and removing it.*
- *Be careful that flexible board must not override on anything.*
- *Be careful that the two bending portions of the FP-467 flexible board must not be bent excessively that results in open circuit and breakdown of flexible board.*
- *Do not rub the DEW sensor with any rubbing bars.*

2003.01.30

HELP

Application of grease, soldering method and precautions, and phase matching adjustment are compiled and below.

Apply grease (1)

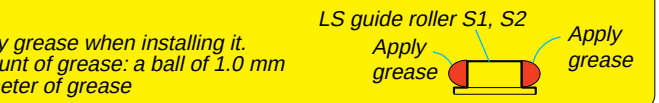

Tension spring
(Tension regulator)
TG2 arm block assy
Note: Re-application of grease to the point which is greased already before is not necessary.
TG7 arm block assy
During installation, apply grease in the TG2 arm pivot shaft hole.
Amount of grease: a ball of grease of 1.0 mm diameter
(Note)
Apply grease on the supporting surface of the TG7 pivot shaft.
Grease application point:
Amount of grease:
a ball of grease of 0.5 mm diameter
(Note)
TG7 pivot shaft
Supporting surface
Gooseneck gear shaft
Amount of grease: a ball of grease of 1.0 mm diameter
(Note)
Apply grease
• Do not apply grease to the wrong position.
• Do not forget to apply grease.
• Do not make mistake about amount of grease.
• When applying grease, do not splash or touch grease to any other parts and components.
Gooseneck gear assy
Worm shaft
Deceleration gear
Apply grease
Amount of grease to be applied
: 2.0 mm dia (at 2 locations)
Gooseneck gear shaft

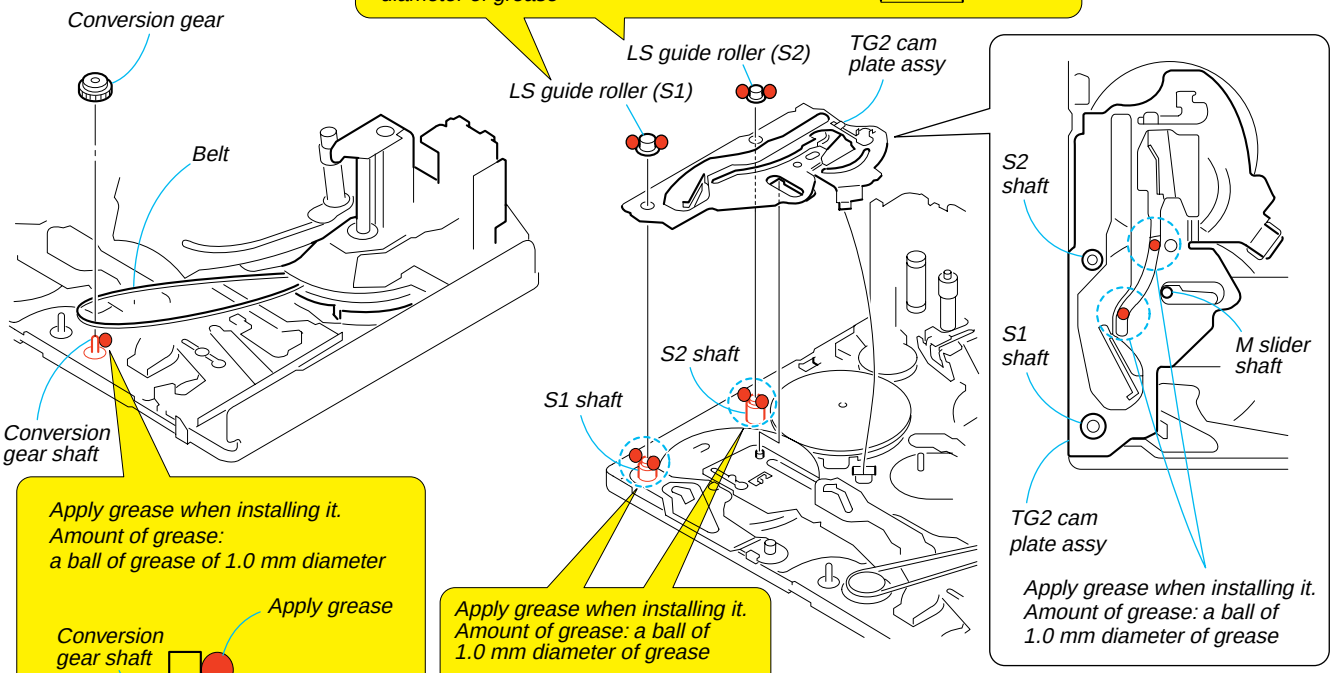
Apply grease (2)

Apply Grease

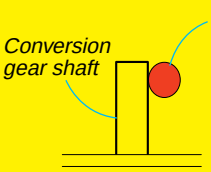
Points to be noted

Apply grease when installing it.
Amount of grease: a ball of 1.0 mm diameter of grease



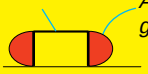


Apply grease when installing it.
Amount of grease:
a ball of grease of 1.0 mm diameter



Apply grease when installing it.
Amount of grease: a ball of 1.0 mm diameter of grease

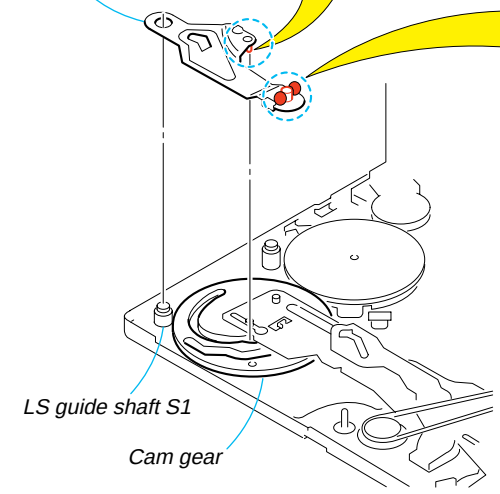
S1 shaft, S2 shaft



Apply grease when installing it.
Amount of grease: a ball of 1.0 mm diameter of grease

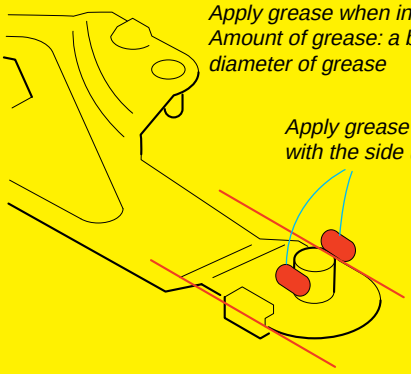
Apply grease when installing it.
Amount of grease: a ball of 1.0 mm diameter of grease

LS arm shaft

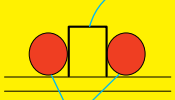


Apply grease when installing it.
Amount of grease: a ball of 1.0 mm diameter of grease

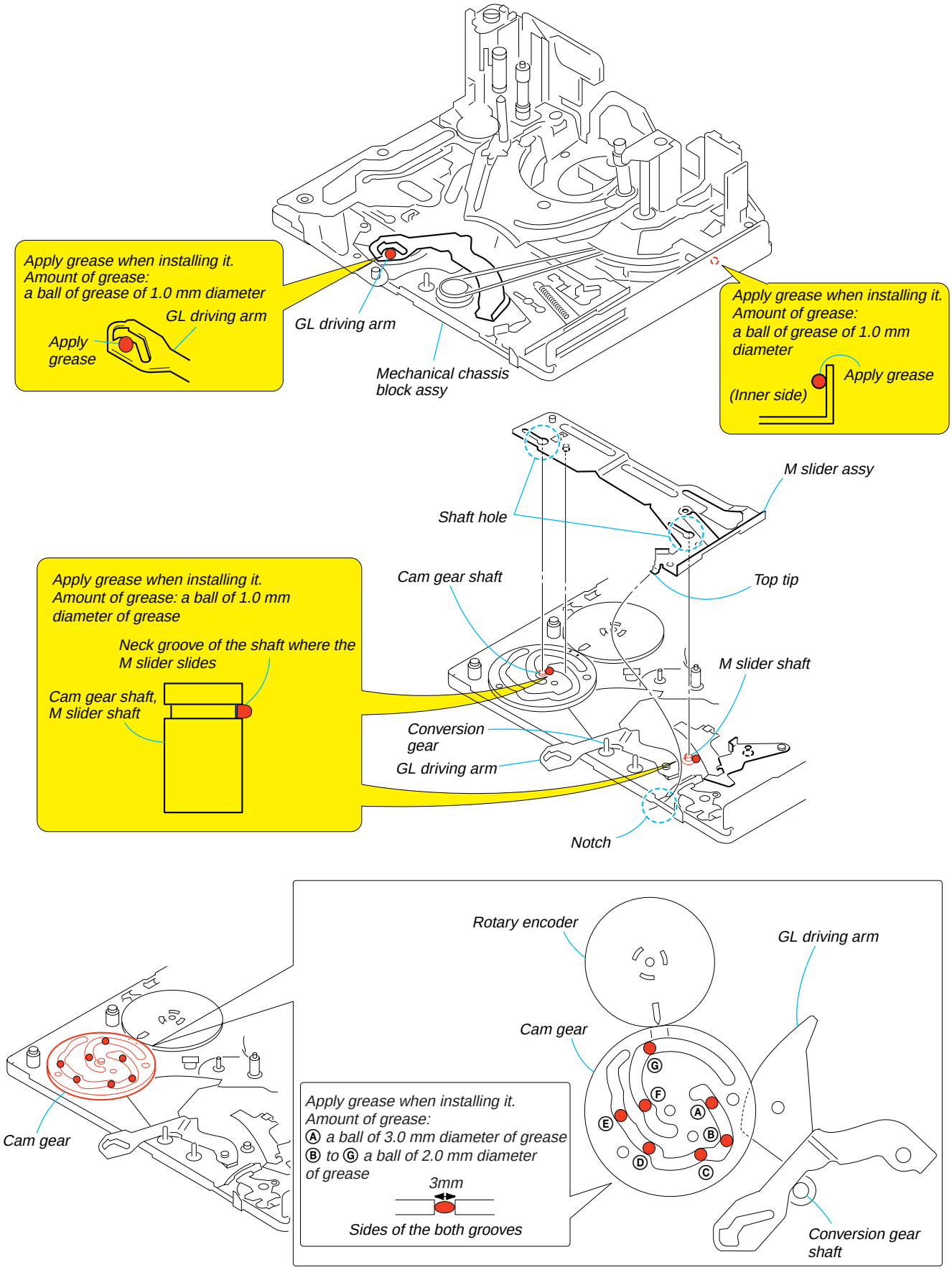
Apply grease in parallel with the side (red line)



LS arm shaft



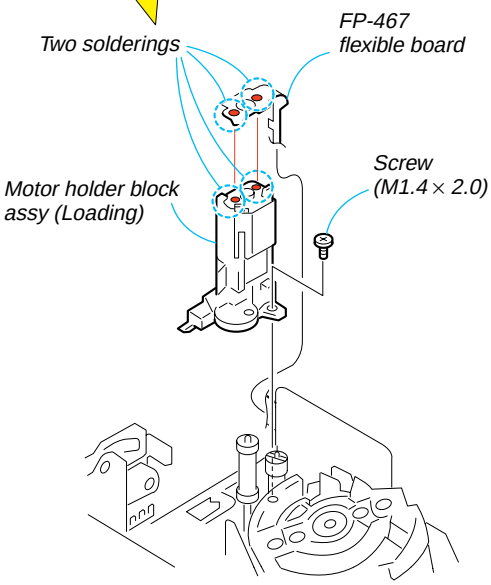
Apply grease (3)

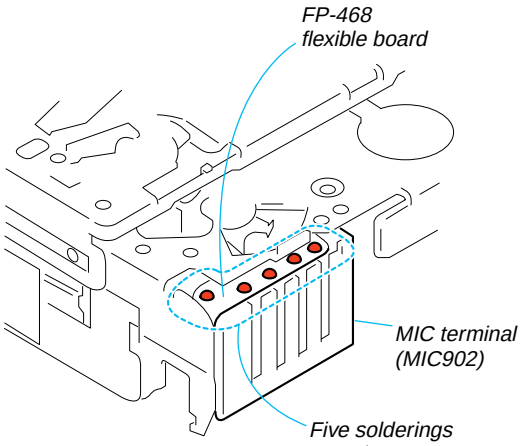

Apply grease when installing it.
Amount of grease:
a ball of grease of 1.0 mm diameter
GL driving arm
Apply grease
GL driving arm
Mechanical chassis block assy
Apply grease when installing it.
Amount of grease:
a ball of grease of 1.0 mm diameter
Apply grease
(Inner side)
M slider assy
Shaft hole
Top tip
Cam gear shaft
M slider shaft
Apply grease when installing it.
Amount of grease: a ball of 1.0 mm diameter of grease
Neck groove of the shaft where the M slider slides
Cam gear shaft, M slider shaft
Conversion gear
GL driving arm
Notch
Rotary encoder
GL driving arm
Cam gear
Cam gear
Apply grease when installing it.
Amount of grease:
Ⓐ a ball of 3.0 mm diameter of grease
Ⓑ to Ⓖ a ball of 2.0 mm diameter of grease
3mm
Sides of the both grooves
Conversion gear shaft

Soldering (1)

Lead-free solder
Wire type : ∅0.6
Temperature of the soldering iron tip : 320 °C
Contacting time of soldering iron tip : within 2 sec.

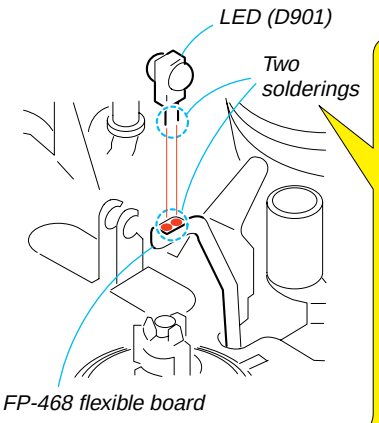
- Be careful not to create the hollow soldering, Br, and there must be no lacking of parts.
- Be careful not to melt the detent of the holder.
- Be careful not to melt the END cover.
- Be careful not to break the terminals due to attaching the soldering iron too long time.



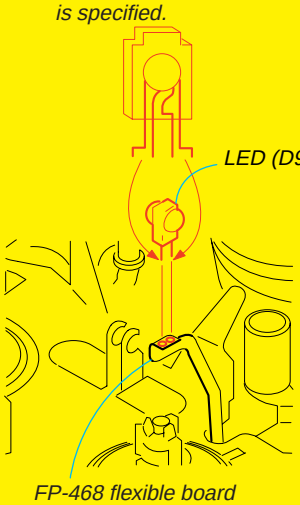


Use the rubber finger tip cover
Lead-free solder
Wire type : ∅0.6
Soldering iron : 941 made by Hakko
Soldering iron tip : T1-1BC

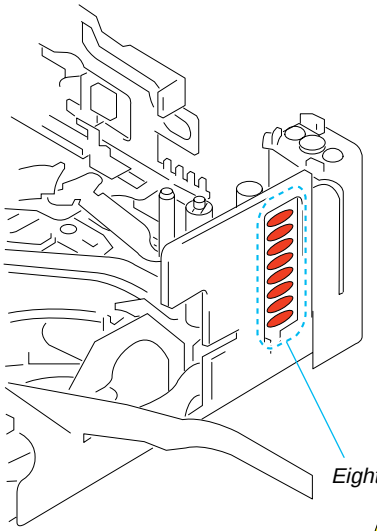
Temperature of the soldering iron tip : 300 ±10 °C
Contacting time of soldering iron tip : within 2 sec



Direction of the terminal is specified.



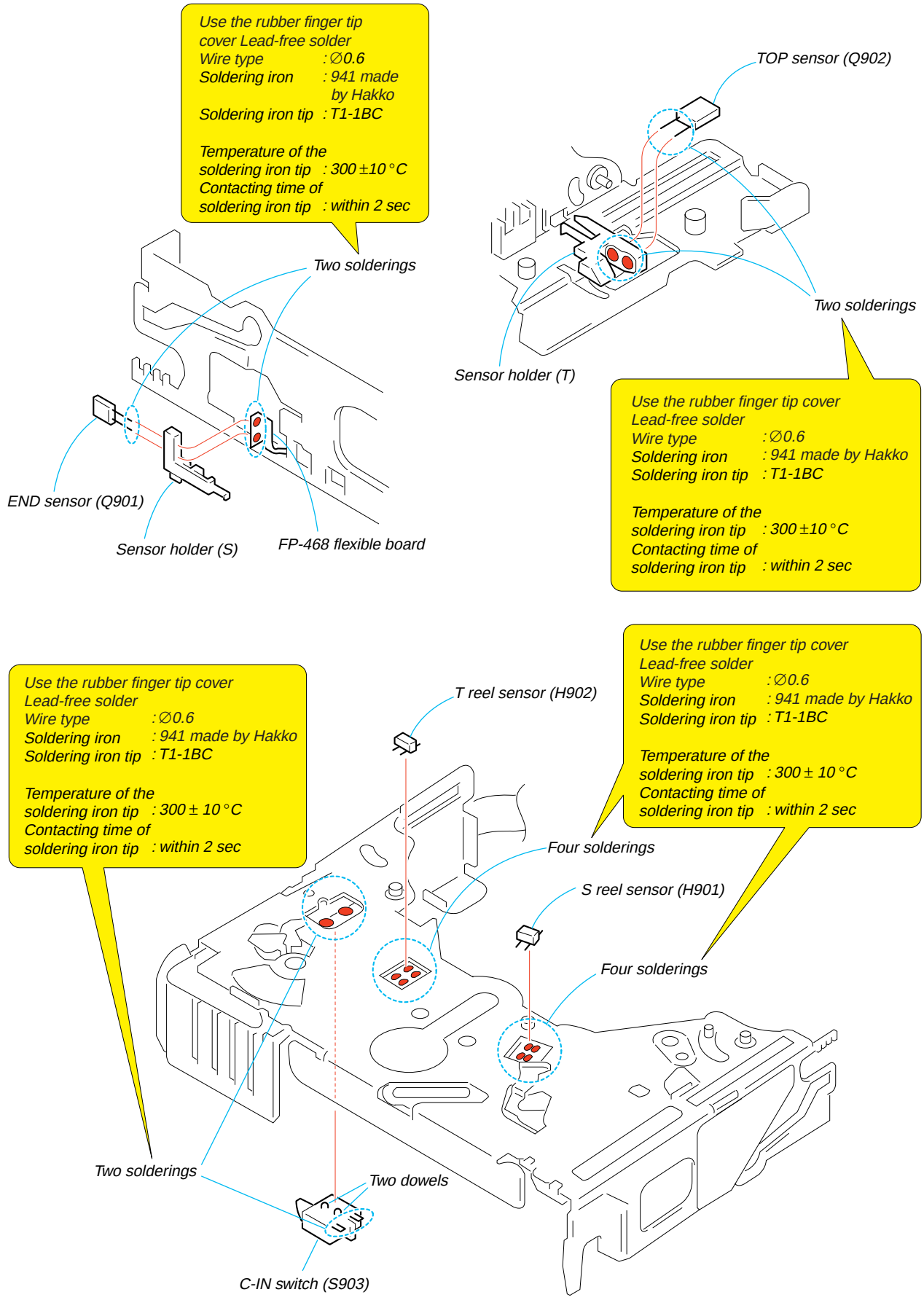
Rubber finger tip protection cover must be used.
Lead-free solder
Wire type: diameter ∅0.6
Soldering iron: 941 made by Hakko
Soldering iron tip: T1-1BC
Temperature of the soldering iron tip: 300 ±10 °C
Contacting time of soldering iron tip: within 2 sec.



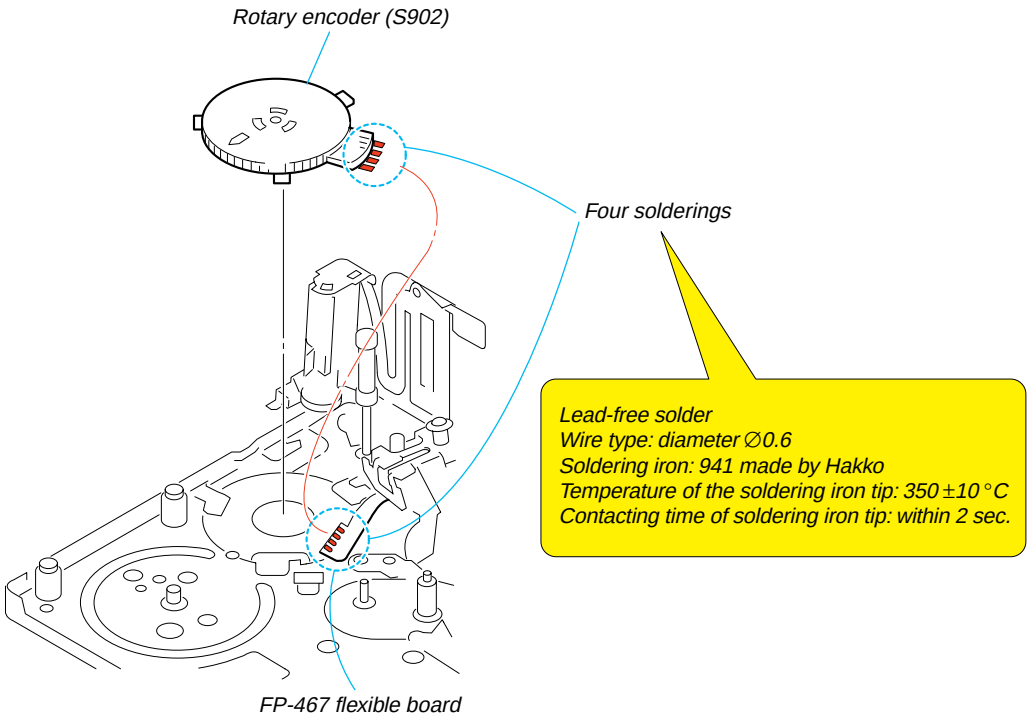
Lead-free solder
Wire type: diameter 0.6 ∅
Temperature of the soldering iron tip: 350 °C
Contacting time of soldering iron tip: within 2 sec.

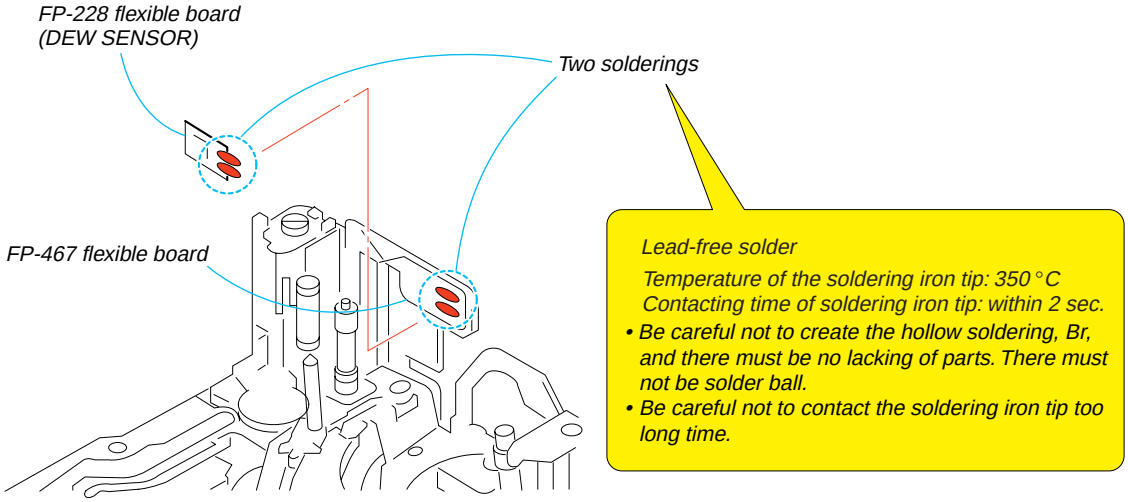
- Be careful not to create the hollow soldering, Br, and there must be no lacking of parts.
- Be careful not to crash the grip jog to the TG1 guide.

Soldering (2)

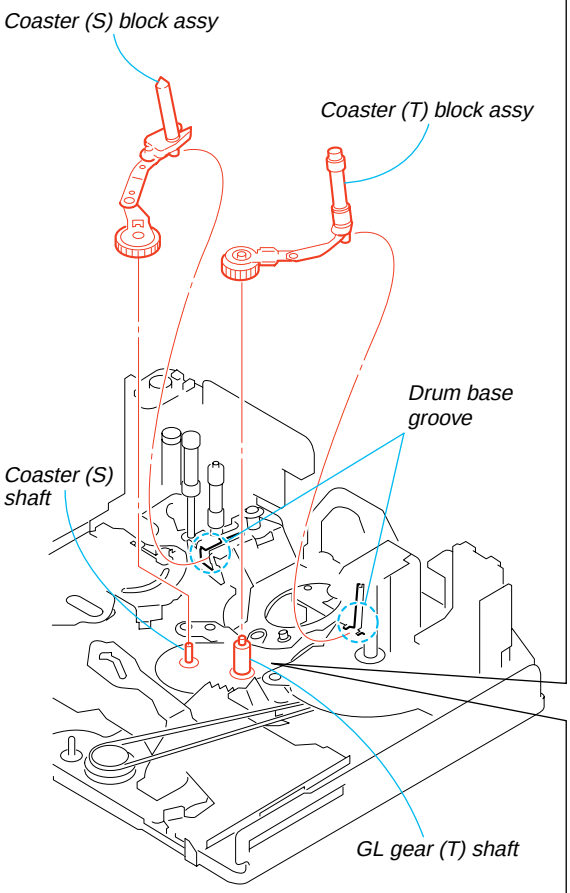

Use the rubber finger tip cover Lead-free solder
Wire type : ∅0.6
Soldering iron : 941 made by Hakko
Soldering iron tip : T1-1BC
Temperature of the soldering iron tip : 300 ±10 °C
Contacting time of soldering iron tip : within 2 sec
Two solderings
END sensor (Q901)
Sensor holder (S)
FP-468 flexible board
TOP sensor (Q902)
Two solderings
Sensor holder (T)
Use the rubber finger tip cover Lead-free solder
Wire type : ∅0.6
Soldering iron : 941 made by Hakko
Soldering iron tip : T1-1BC
Temperature of the soldering iron tip : 300 ±10 °C
Contacting time of soldering iron tip : within 2 sec
Use the rubber finger tip cover Lead-free solder
Wire type : ∅0.6
Soldering iron : 941 made by Hakko
Soldering iron tip : T1-1BC
Temperature of the soldering iron tip : 300 ± 10 °C
Contacting time of soldering iron tip : within 2 sec
T reel sensor (H902)
Four solderings
S reel sensor (H901)
Four solderings
Two solderings
Two dowels
C-IN switch (S903)

Soldering (3)

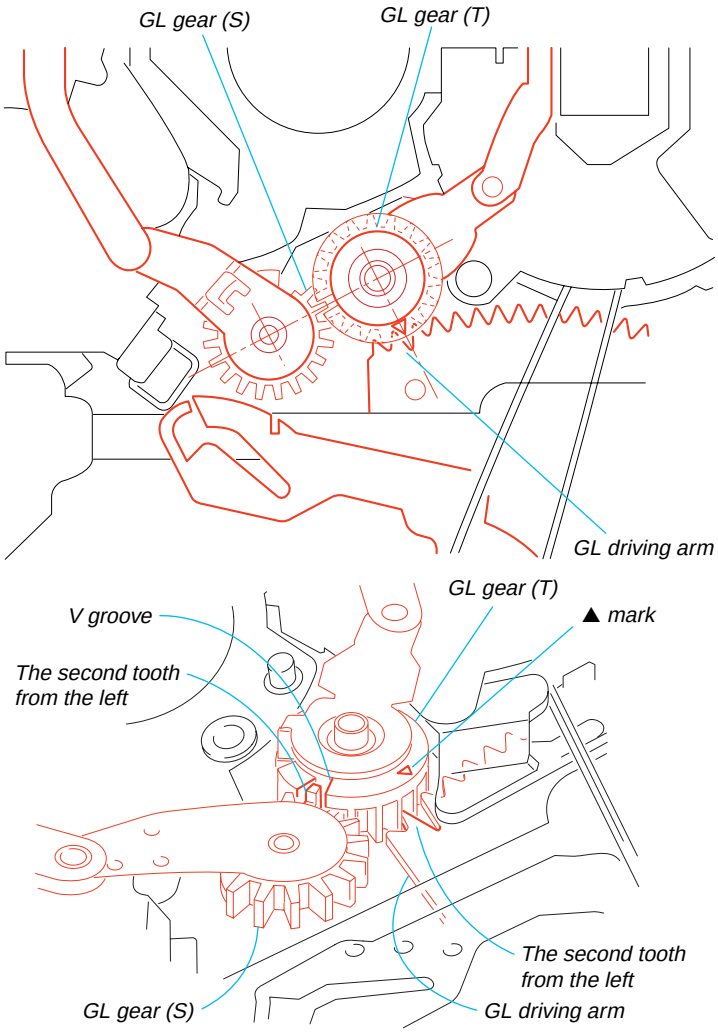

Rotary encoder (S902)
Four solderings
Lead-free solder
Wire type: diameter ∅0.6
Soldering iron: 941 made by Hakko
Temperature of the soldering iron tip: 350 ±10 °C
Contacting time of soldering iron tip: within 2 sec.
FP-467 flexible board


FP-228 flexible board
(DEW SENSOR)
Two solderings
FP-467 flexible board
Lead-free solder
Temperature of the soldering iron tip: 350 °C
Contacting time of soldering iron tip: within 2 sec.
• Be careful not to create the hollow soldering, Br, and there must be no lacking of parts. There must not be solder ball.
• Be careful not to contact the soldering iron tip too long time.

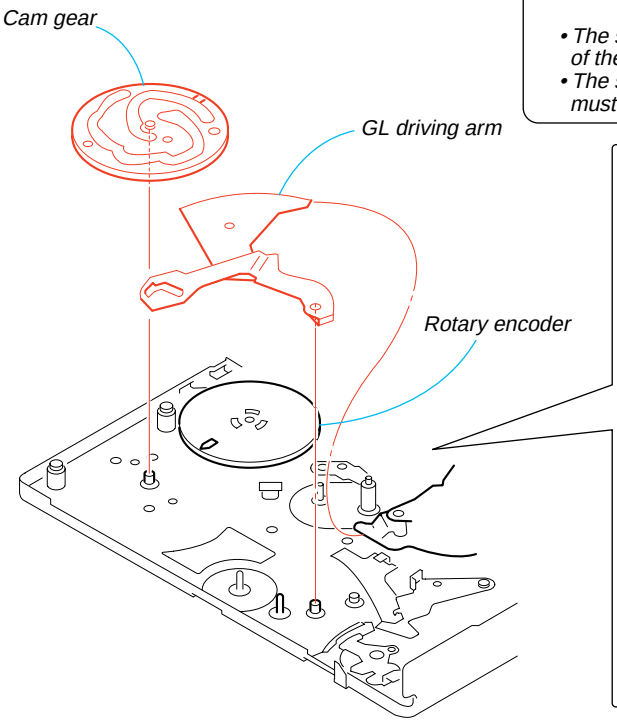
Matching Phase

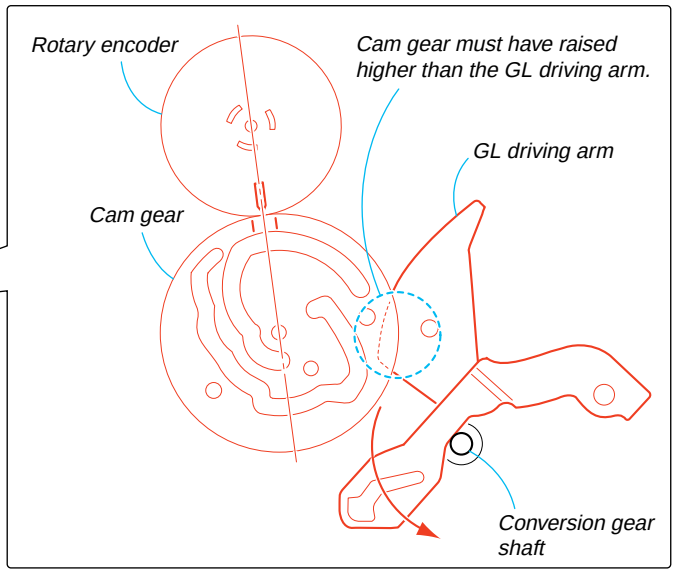


When re-assembling, adjust the gear phase at the three positions.



- The second tooth from the left of the GL gear (S) and the V-groove of the GL gear (T) must be in phase.
- The second tooth from the left of the GL drive arm and the ▲ mark must be in phase.





4. Adjustment

4-1. FWD Position Adjustment

When the TG2 arm block assy or the band adjuster or the S reel table assy is replaced or removed, the following adjustment becomes necessary.

- TG2 FWD Position Adjustment (Refer to section 4-4.)
- FWD Back Tension Adjustment (Refer to section 4-4.)
- Reel Table (RVS) Check (Refer to section 4-2.)

1) Set the R/P mode and check the TG2 guide position as follows.
   - Confirm that the distance between the TG2 guide and the L motor is 1.0 mm. If not, perform adjustment as follows.
2) Loosen the fixing screw. Use the adjustment screwdriver (Ref No. J-8) and adjust the band adjuster for the distance of 1.0 mm between the TG2 guide and the L motor. Upon completion of adjustment, tighten the fixing screw securely as follows.
   Tightening torque: 0.059 ± 0.01 N•m (0.6 ± 0.1 kgf•cm)
   Note: Upon completion of adjustment, confirm that TG2 can move with some margin in the direction of the arrow Ⓐ.

4-2. Reel Torque Check

1. Check Procedure

[FWD torque]

1) Set the mini DV torque cassette (Ref. No. J-6).
2) Establish the FWD mode. Confirm that the center value of the T reel table torque value is in the range of 0.49 to 0.93 (mN•m) (5.0 to 9.5 g•cm) within deviation of 0.39 (mN•m) (4.0 g•cm)

[RVS torque]

1) Set the mini DV torque cassette (Ref. No. J-6).
2) Establish the RVS mode. Confirm that the center value of the S reel table torque value is in the range of 1.57 to 2.45 (mN•m) (16.0 to 25.0 g•cm)

If the above specification is not satisfied, check the tension regulator band for correct operation. If operation of the tension regulator band has no problem, replace the respective reel tables.

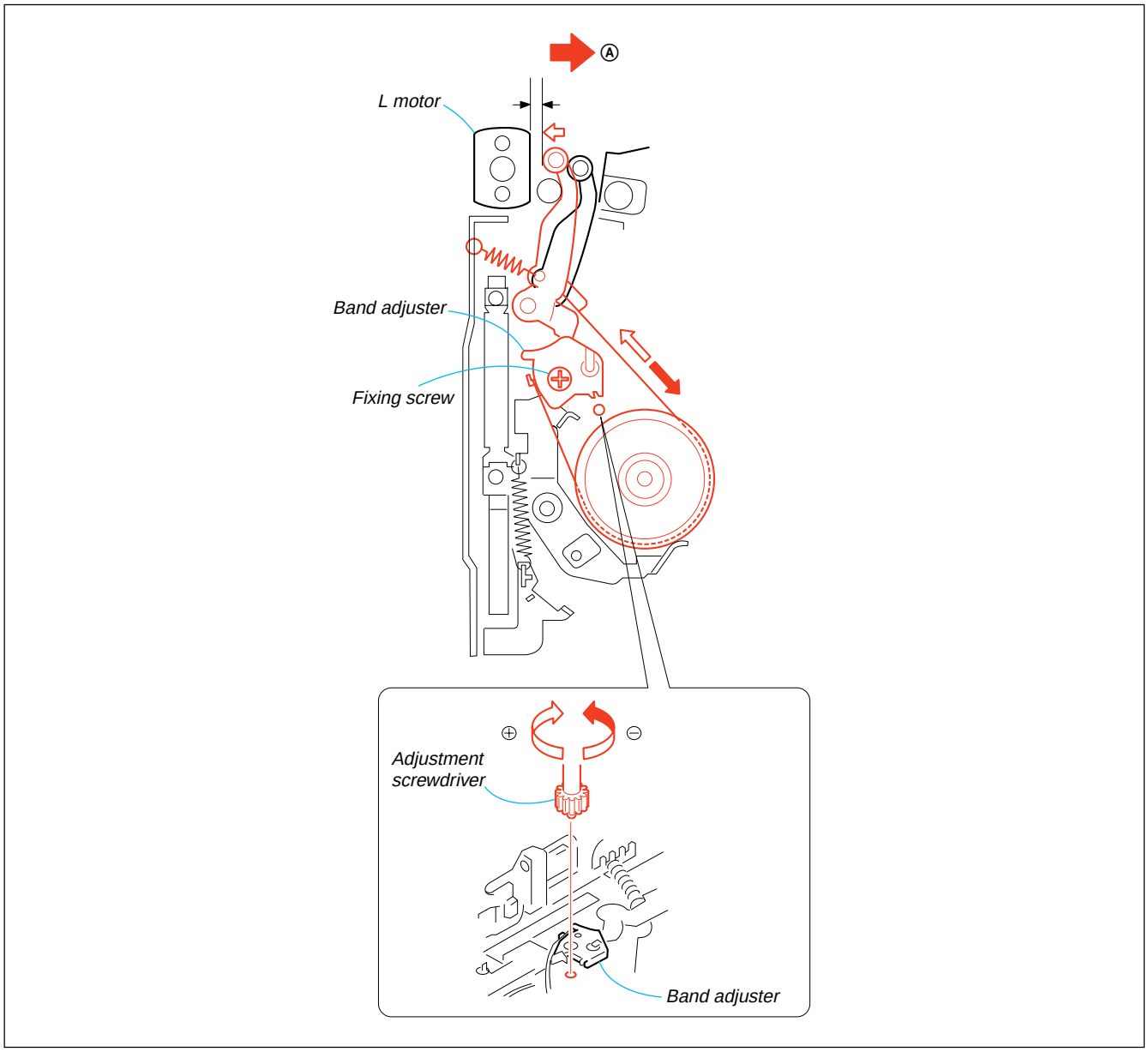


Fig. 4-1

4-3. LS Cam Plate Position Adjustment

1. Adjustment Procedure

1) Loosen the LS cam plate fixing screw (special head screw M1.4 × 1.4) by 180 degrees.
2) Set the STOP mode.
3) While pressing the center of the LS chassis block with the force of 1.5 ± 0.5 N (150 gf ± 50 gf), move the LS cam plate toward the S reel side with the force of 0.147 ± 0.01 N•m (2300 gf ± 200 gf) and tighten the LS cam plate fixing screw (special head screw M1.4 × 1.4) ①.
   Tightening torque: 0.098 ± 0.01 N•m (1.0 ± 0.1 kgf•cm)

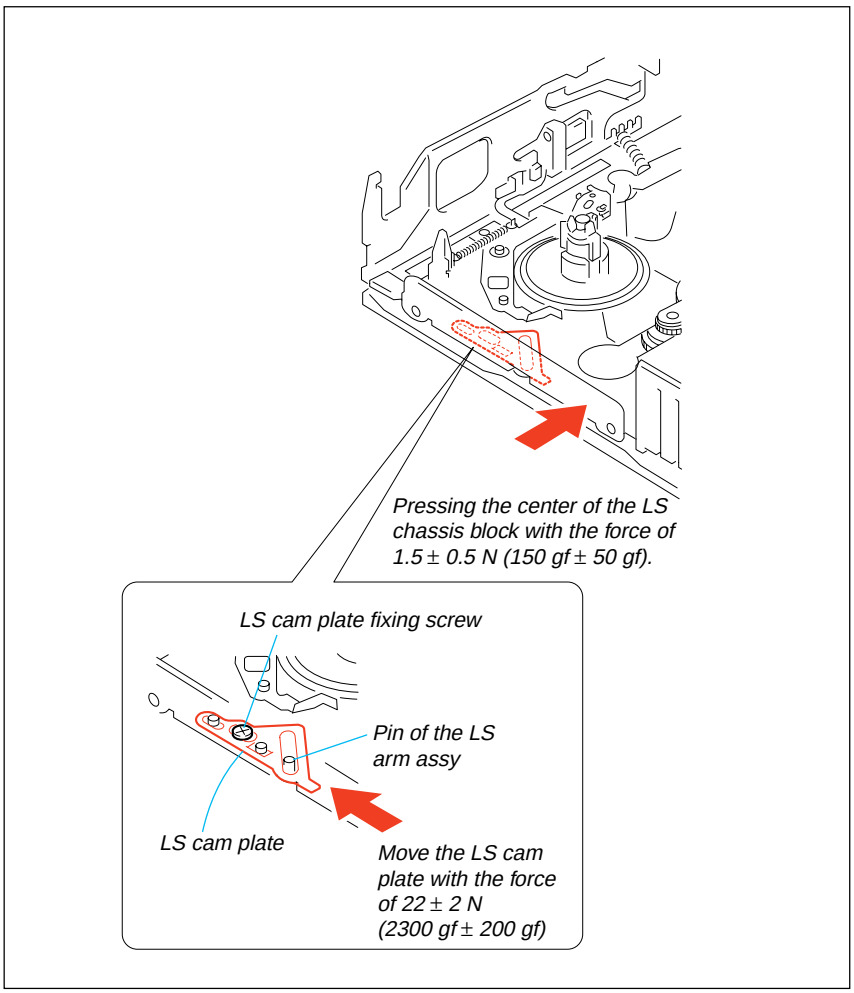

Pressing the center of the LS chassis block with the force of 1.5 ± 0.5 N (150 gf ± 50 gf).
LS cam plate fixing screw
Pin of the LS arm assy
LS cam plate
Move the LS cam plate with the force of 22 ± 2 N (2300 gf ± 200 gf)

Fig. 4-2

4-4. Tape Path Adjustment

4-1. Adjustment Preparation

1) Clean the tape running surface (tape guides, drum, capstan, pinch roller) referring to section 2-2.
2) Connect the adjustment remote commander (Ref. No. J-13) to the LANC terminal of the machine. Set the HOLD switch to ON.
3) Connect an oscilloscope to CN1004 of the VC-312 board via the CPC-7 jig (J-6082-382-A). (In the case of DCR-TRV22K)
   Oscilloscope CH1: VC-312 board CN1004 pin② (Note 1)
   EXT. TRIG: VC-312 board CN1004 pin④
   Note 1: Connect CN1004 pin② and pin⑥ (GND) with a 75-ohm resistor (1-247-804-11).
4) Play back the tracking alignment tape (XH 2-1) (Ref. No. J-5).
5) Select page: 0, address: 10 and set data: 00. (Note 2)
6) Select page: 3, address: 26 and set data: 31, and press the PAUSE button. (Note 2)
7) Select page: 3, address: 33 and set data: 08. (Note 2)
8) Confirm that the RF waveform on the scope is flat at both of the entrance side and the exit side. (Refer to Fig. 4-4A.)
   If the RF waveform is not flat either at the entrance side or the exit side (refer to Fig. 4-4 B and C), perform the adjustment of section 6-2 and later.
9) When the required conditions of step 8) are satisfied, perform [Required Work upon Completion of Adjustment] as described below upon completion of adjustment/check.

[Required Work upon Completion of Adjustment]

1) Connect the adjustment remote commander (Ref. No. J-13) to the LANC terminal of the machine. Set the HOLD switch to ON.
2) Select page: 0, address: 10 and set data: 00. (Note 2)
3) Select page: 3, address: 26 and set data: 00, and press the PAUSE button. (Note 2)
4) Select page: 3, address: 33 and set data: 00. (Note 2)
   Note 2: Page and address numbers differ depending on each model. Please to Service Manual of the respective models. Page and address numbers of DCR-TRV22K are shown in this manual.

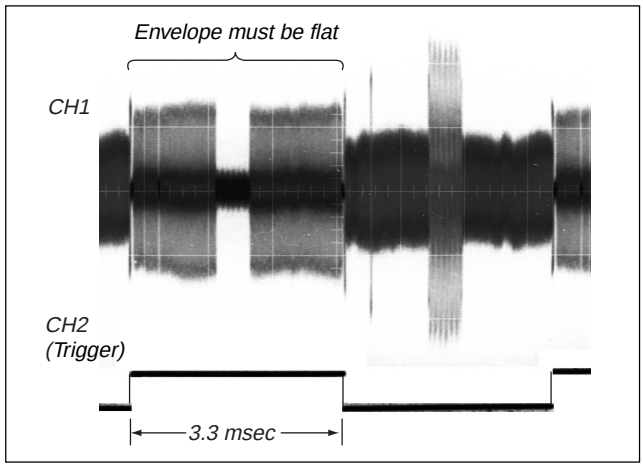


Fig. 4-3

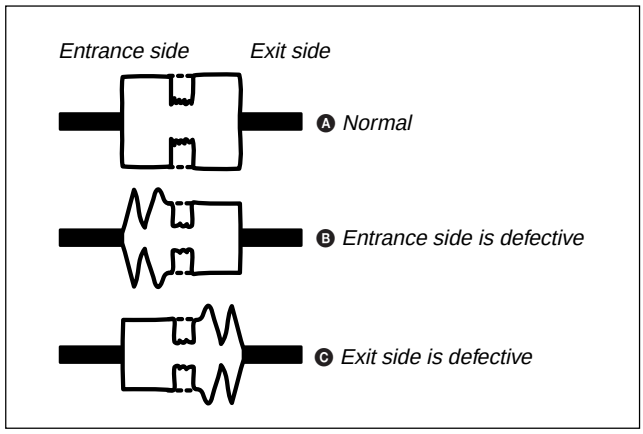


Fig. 4-4

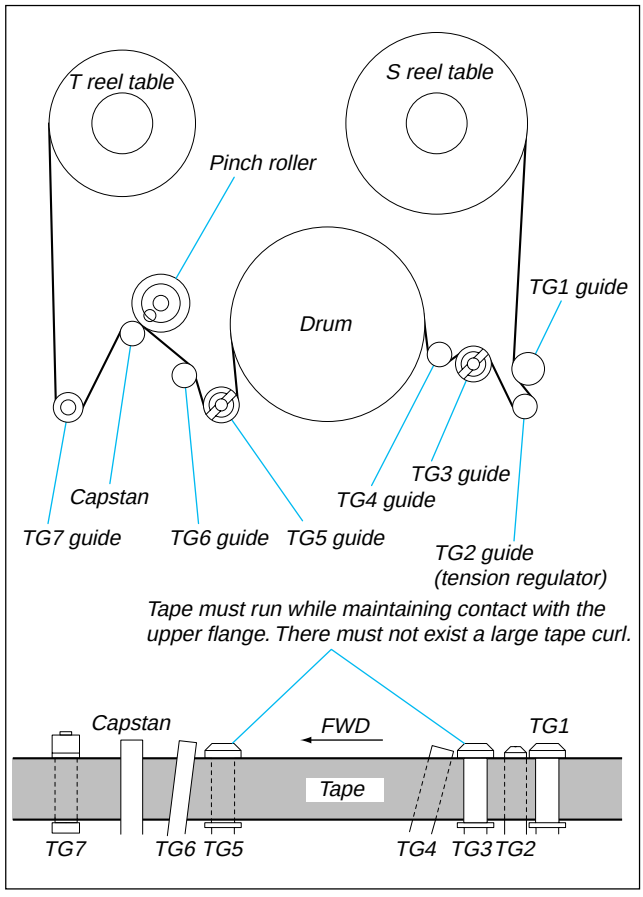


Fig. 4-5

4-2. TG3/TG5 Guide Coarse Adjustment

1) Play back the tracking alignment tape (XH 2-1) (Ref. No. J-5).
2) Adjust the TG3 and TG5 guides until the RF envelope waveform becomes flat. (Refer to Fig. 4-8.)

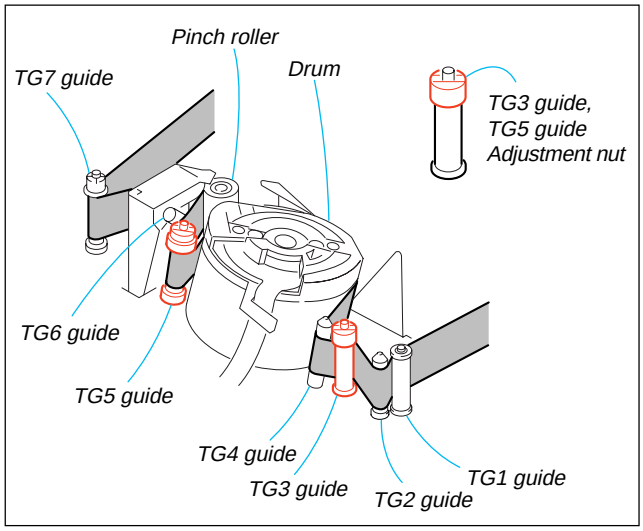


Fig. 4-6

4-3. FWD Back Tension Adjustment

1) Set the mini DV torque cassette (Ref. No. J-6) and establish the FWD mode.
2) Confirm that the S side torque cassette reading value is in the range of 0.2 to 0.3 mN•m (2.0 to 3.0 g•cm) including deviation. If the measurement value does not satisfy the specifications, perform the following adjustment.
   - If the measurement value is higher than the specification: (Decreases the spring tension)
     Move the tension coil spring hook to another spring stay in the direction of Ⓑ.
   - If the measurement value is lower than the specification: (Increases the spring tension)
     Move the tension coil spring hook to another spring stay in the direction of Ⓐ.

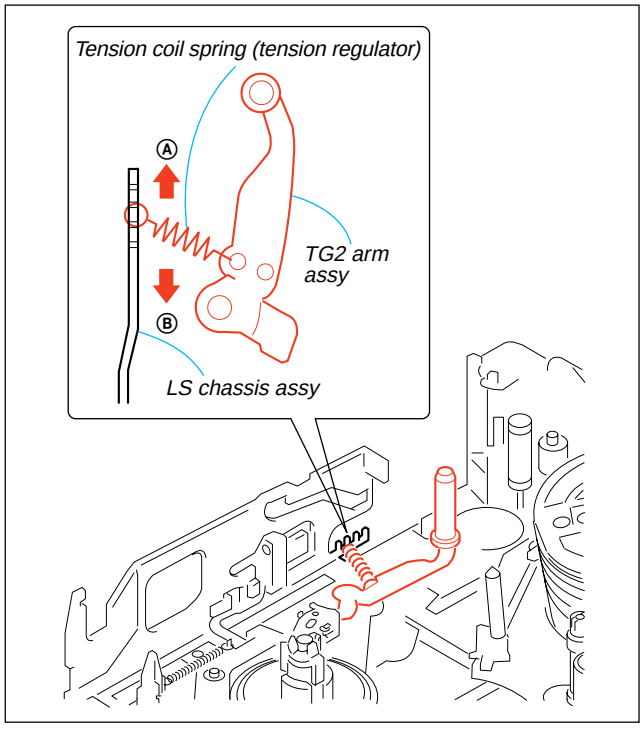


Fig. 4-7

4-4. TG3/TG5 Guide Fine Adjustment

1) Play back the tracking alignment tape (XH 2-1) (Ref. No. J-5).
2) Adjust the TG3 so that the RF envelope has the larger amplitude at the entrance side first, than adjust TG3 guide for flat amplitude. (Refer to Fig. 4-8.)
3) Adjust the TG5 so that the RF envelope has the larger amplitude at the exit side first, than adjust TG5 guide for flat amplitude. (Refer to Fig. 4-9.)

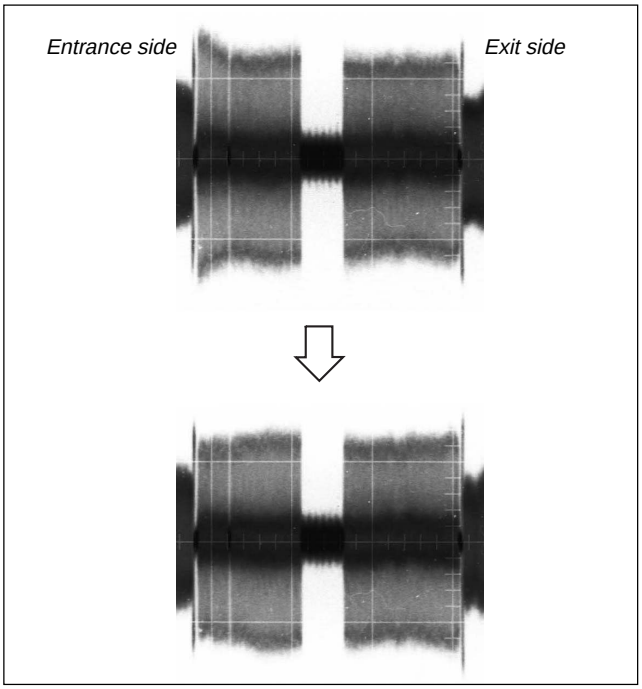


Fig. 4-8

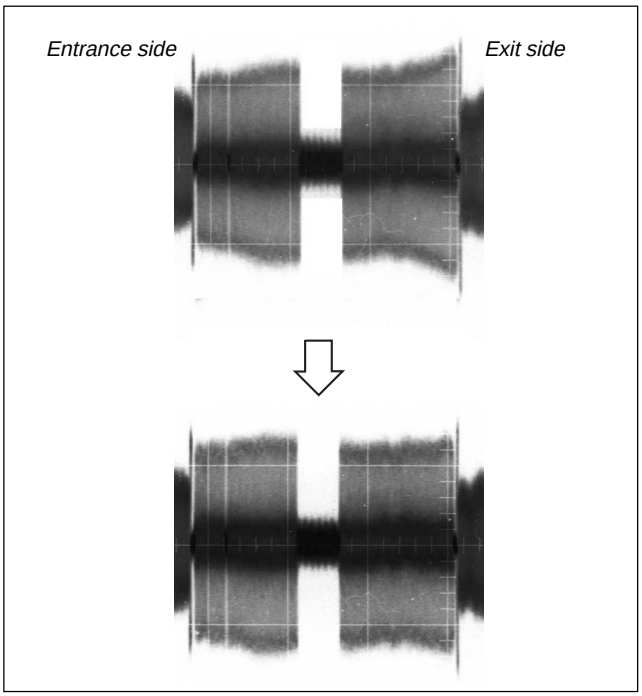


Fig. 4-9

4-5. Tape Run Check

1) Play back the tracking alignment tape (XH 2-1) (Ref. No. J-5). Establish the CUE mode first then the REV mode. Confirm in the respective modes that there are no large tape curls at the upper flange of TG3 and TG5. Then confirm in the respective modes that there are no large tape curls at the upper and lower flanges of TG1 and TG7.

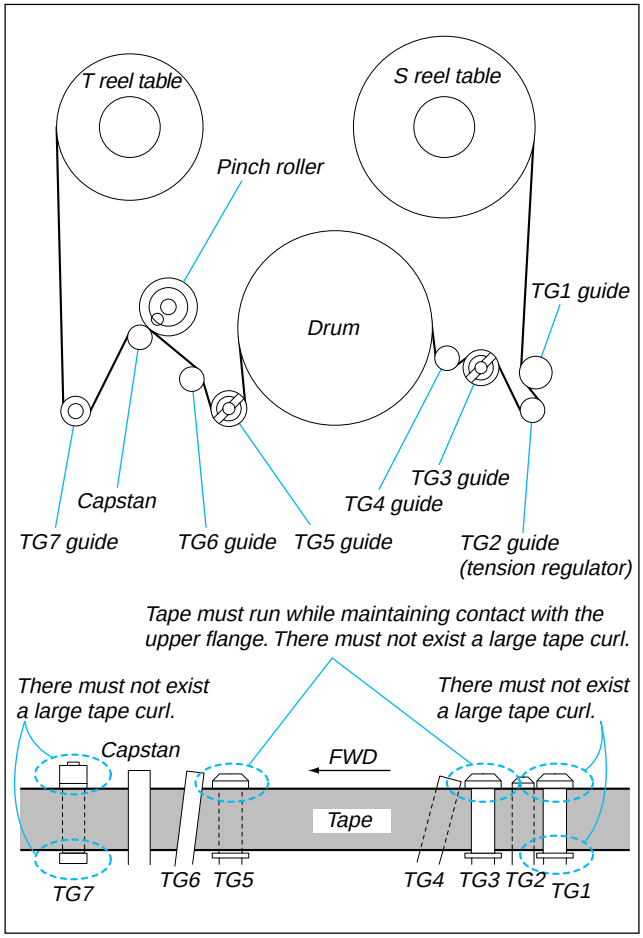


Fig. 4-10

4-6. Check upon Completion of Adjustment

1. Tracking Check

1) Play back the tracking alignment tape (XH 2-1) (Ref. No. J-5).
2) Establish the CUE (or REV) mode. Take the amplitude (A) in this mode as the 100% waveform amplitude. (Refer to Fig. 4-11.)
3) Establish the FWD mode. Confirm that the difference between the minimum (E min) and the maximum (E max) is less than 30%. (When taking the amplitude (A) in the CUE or REV mode as 100%)

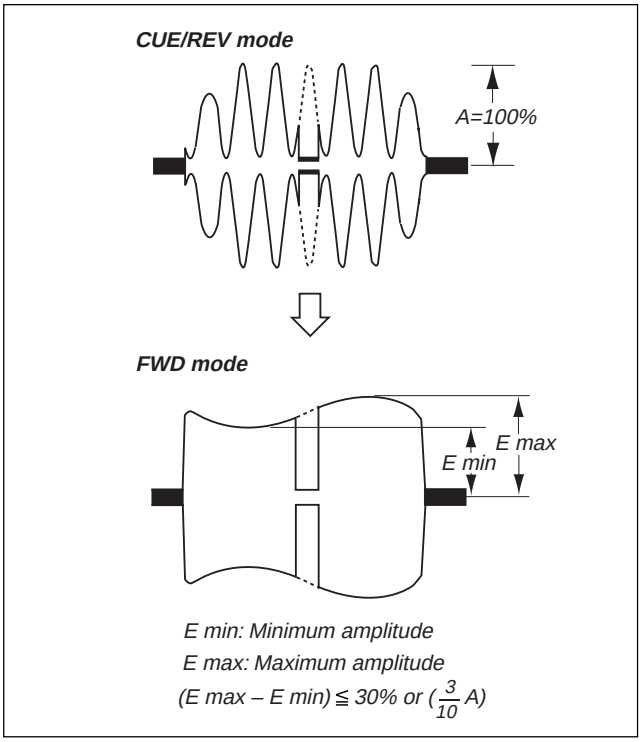


Fig. 4-11

4) Confirm that the RF waveform does not have excessive fluctuation of amplitude. (Fluctuation of amplitude should be 10% or less at both entrance side (B) and exit side (C), when taking the amplitude (A) in the CUE or REV mode as 100%)

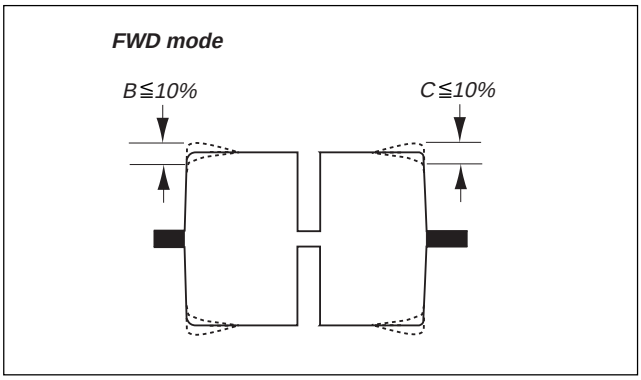


Fig. 4-12

2. CUE/REV Check

1) Play back the tracking alignment tape (XH 2-1) (Ref. No. J-5).
2) Establish the CUE mode. Confirm that the pitches between the peaks of the RF waveform are equally spaced. Also confirm that the RF waveform amplitude at entrance side (B) and exit side (C) is 50% or more respectively, when taking the amplitude (A) in the CUE or REV mode as 100%.
3) Establish the REV mode. Confirm that the pitches between the peaks of the RF waveform are equally spaced. Also confirm that the RF waveform amplitude at entrance side (B) and exit side (C) is 50% or more respectively.

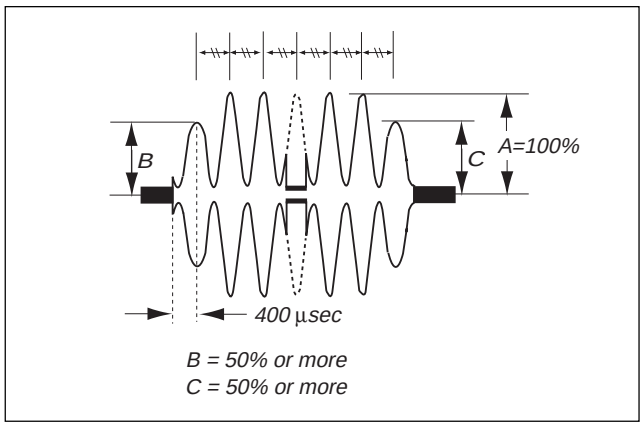


Fig. 4-13

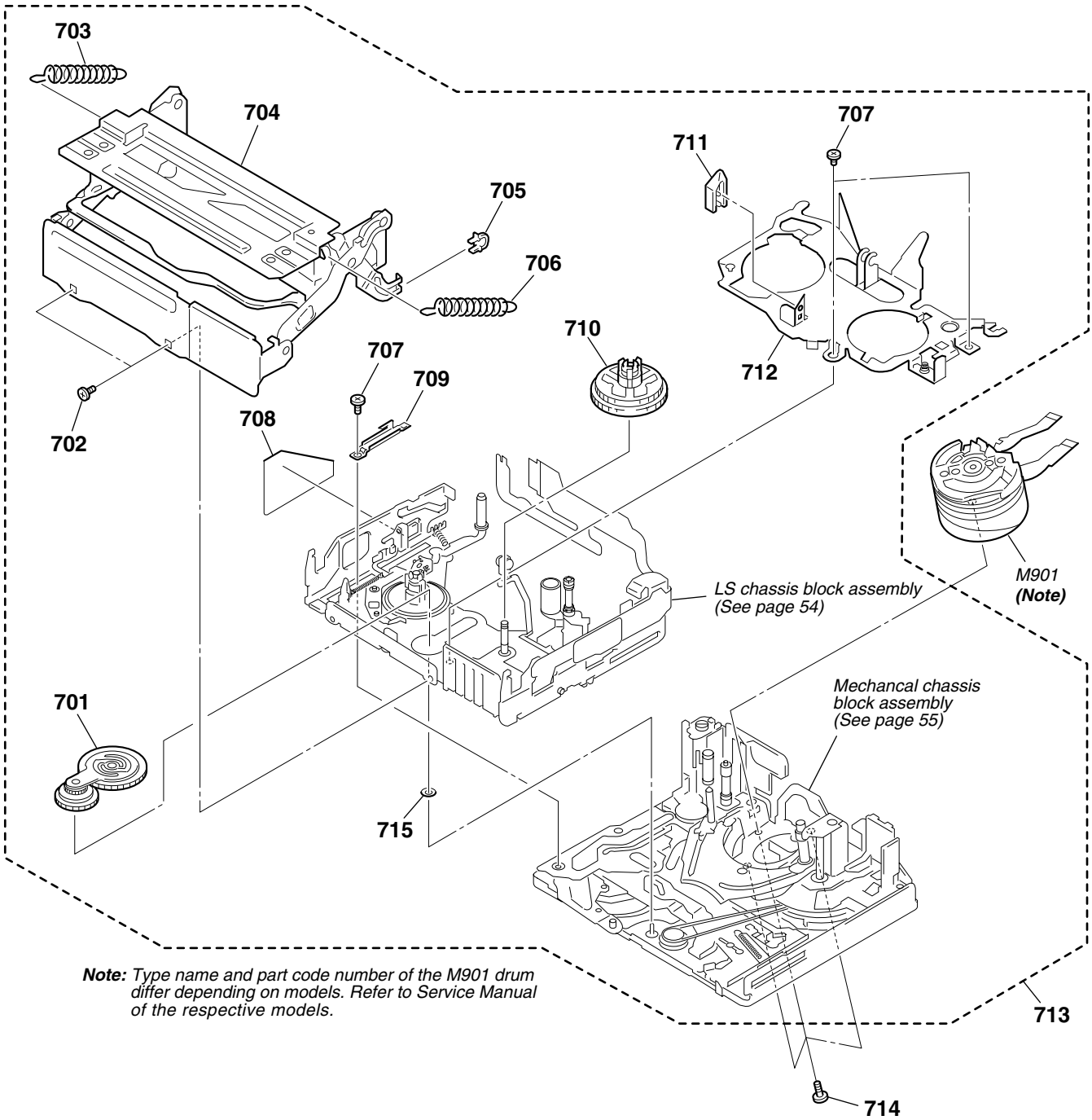
3. Rise-up Check

1) Play back the tracking alignment tape (XH 2-1) (Ref. No. J-5).
2) Change the modes from CUE mode to FWD. Confirm that the RF waveform rises up within two seconds when the mode is changed from CUE mode to FWD.
3) Change the modes from REV mode (two seconds or more of REV and to the FWD within five seconds) to FWD. Confirm that the RF waveform rises up within two seconds when the mode is changed from REV mode to FWD.
4) Change the modes from STOP mode to FWD. Confirm that the RF waveform rises up within two seconds when the mode is changed from STOP mode to FWD.

5. Exploded Views

NOTE:
- -XX, -X mean standardized parts, so they may have some differences from the original one.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.

5-1. Overall Mechanism Deck Section (Z100)

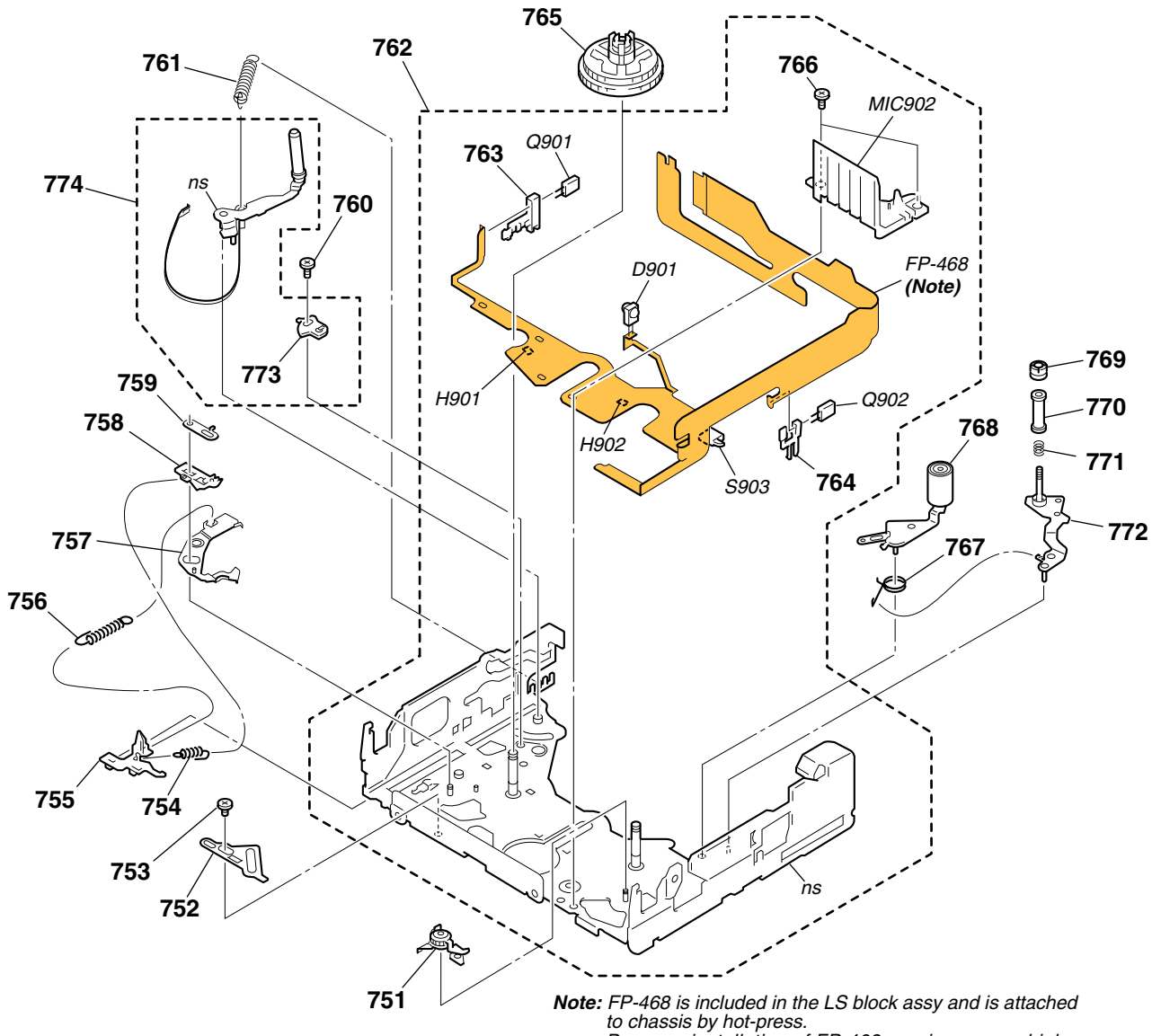


Note: *Type name and part code number of the M901 drum differ depending on models. Refer to Service Manual of the respective models.*

Ref. No.	Part No.	Description
701	X-3952-938-3	GEAR ASSY, GOOSENECK
702	3-075-097-11	SCREW (M1.4X1.4), SPECIAL HEAD
703	3-079-206-02	SPRING (POP UP S), EXTENSION
704	X-3952-939-3	COMPARTMENT ASSY, CASSETTE
705	3-079-367-01	DAMPER, CASSETTE COMPARTMENT
706	3-079-215-02	SPRING (POP UP T), EXTENSION
707	3-703-816-15	SCREW (M1.4), SPECIAL HEAD
708	3-080-545-01	COVER, SENSOR S
709	3-079-364-01	RETAINER, LS GUIDE
710	X-3952-937-1	TABLE ASSY, T REEL
711	3-079-366-01	RELEASE, REEL LOCK
712	X-3953-257-1	PLATE ASSY, RETAINER
713	A-7095-393-A	MD (Z100) SUB ASSY
714	3-079-741-02	SCREW,DRUM FIXING
715	3-748-682-01	WASHER,T
M901	– Note –	DRUM (DEH-30A-R)(SERVICE)

5-2. LS Chassis Block Assembly

ns : not supplied



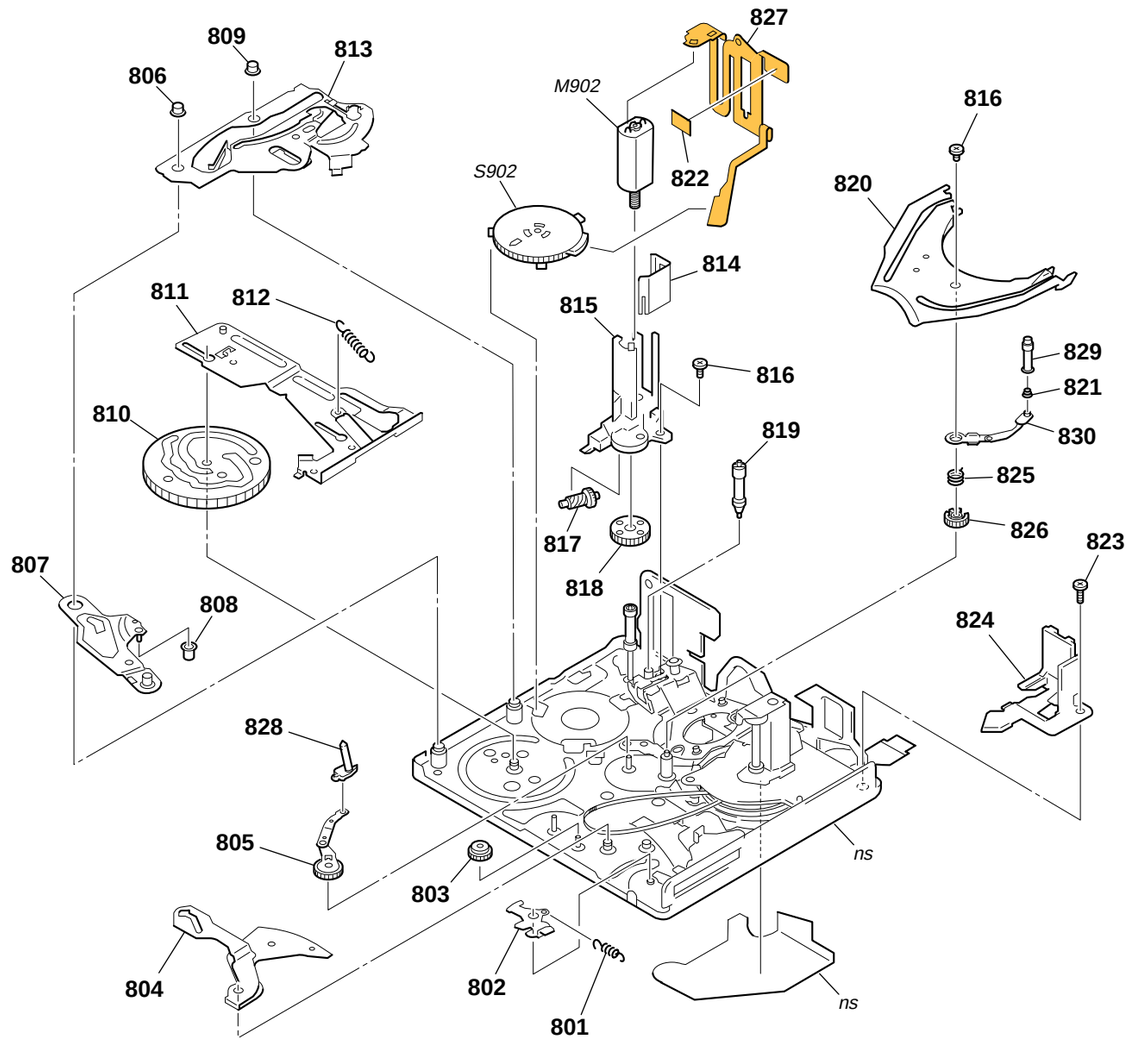
Note: *FP-468 is included in the LS block assy and is attached to chassis by hot-press.*
Because installation of FP-468 requires a very high accuracy, FP-468 is not supplied as an independent service parts.

Ref. No.	Part No.	Description
751	A-7095-402-B	BRAKE (T) BLOCK ASSY
752	3-079-241-01	PLATE, LS CAM
753	3-075-097-11	SCREW (M1.4X1.4), SPECIAL HEAD
754	3-079-246-01	SPRING (RELEASE RACK),EXTENSION
755	3-079-248-01	POSITIONING (S), CASSETTE
756	3-079-244-01	SPRING (ULE), EXTENSION
757	X-3952-932-1	BRAKE ASSY, ULE
758	3-079-245-01	RACK (S), RELEASE
759	3-079-247-01	BRAKE (S)
760	3-059-090-11	SCREW (M1.4X2.5), SPECIAL HEAD
761	3-079-242-01	SPRING, TENSION (TENSION REGULATOR)
762	A-7095-401-A	LS BLOCK ASSY
763	3-079-267-01	HOLDER (S), SENSOR
764	3-079-268-01	HOLDER (T), SENSOR
765	X-3952-936-2	TABLE ASSY, S REEL

Ref. No.	Part No.	Description
766	3-703-816-15	SCREW (M1.4), SPECIAL HEAD
767	3-079-243-01	SPRING (PINCH RETURN), TORSION
768	X-3952-934-1	ARM ASSY, PINCH
769	3-052-062-02	NUT, TG7
770	3-079-219-02	TG7
771	3-081-591-01	SPRING, COMPRESSION (TG7)
772	X-3952-935-3	ARM ASSY, TG7
773	3-079-237-01	ADJUSTOR, BAND
774	A-7095-403-B	TG2 ARM BLOCK ASSY
D901	6-500-471-01	DIODE GL453E00000F (TAPE LED)
H901	8-719-067-74	ELEMENT, HOLE HW-105A-CDE-T (S REEL)
H902	8-719-067-74	ELEMENT, HOLE HW-105A-CDE-T (T REEL)
MIC902	1-817-175-12	PIN, CONNECTOR (WITH DETECTION SWITCH)
S903	1-529-566-51	SWITCH, PUSH (1 KEY) (C.C. DOWN)
Q901	6-550-402-01	TRANSISTOR PT4850FE000F (TAPE END)
Q902	6-550-402-01	TRANSISTOR PT4850FE000F (TAPE TOP)

5-3. Mechanical Chassis Block Assembly

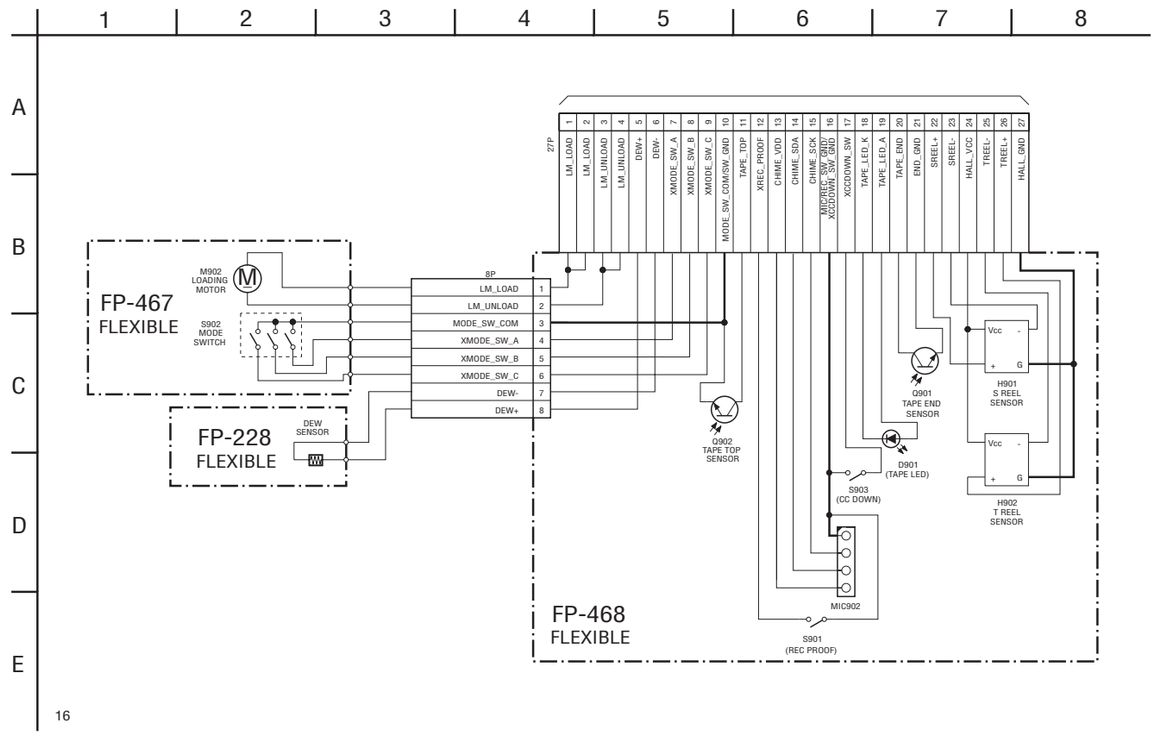
ns : not supplied



Ref. No.	Part No.	Description
801	3-079-314-01	SPRING (EJ), EXTENSION
802	3-079-327-01	ARM, EJ
803	3-079-323-02	GEAR, CONVERSION
804	3-079-324-02	ARM, GL DRIVING
805	X-3952-928-1	GL (S) ASSY
806	3-079-315-01	ROLLER (S1), LS GUIDE
807	X-3952-925-1	ARM ASSY, LS
808	3-079-320-01	ROLLER, LS
809	3-079-316-01	ROLLER (S2), LS GUIDE
810	3-079-319-01	GEAR, CAM
811	X-3952-941-1	SLIDER ASSY, M
812	3-079-321-02	SPRING (PINCH), EXTENSION
813	X-3952-940-2	PLATE ASSY, TG2 CAM
814	3-079-312-01	SHIELD, MOTOR
815	3-079-307-01	HOLDER, MOTOR
816	3-703-816-15	SCREW (M1.4), SPECIAL HEAD

Ref. No.	Part No.	Description
817	3-079-308-01	SHAFT, WORM
818	3-079-309-01	GEAR, DECELERATION
819	X-3952-942-2	ROLLER ASSY, TG3
820	3-079-325-01	RAIL, GUIDE
821	3-079-295-02	SPRING, TG5
822	1-677-049-11	FP-228 FLEXIBLE BOARD (DEW SENSOR)
823	3-079-328-01	SCREW ,SPECIAL (EG GRIP)
824	3-079-326-02	SUPPORT, TG7
825	3-079-301-01	SPRING (GLT), TORSION
826	3-079-298-01	GEAR (T), GL
827	1-686-798-11	FP-467 FLEXIBLE BOARD
828	X-3952-927-2	COASTER (S) ASSY
829	X-3952-930-3	ROLLER ASSY, TG5
830	X-3952-929-3	COASTER (T) ASSY
M902	A-7095-396-A	MOTOR BLOCK ASSY, L (LOADING)
S902	1-477-679-11	ROTARY, ENCODER (SWITCH)

6. Schematic Diagrams



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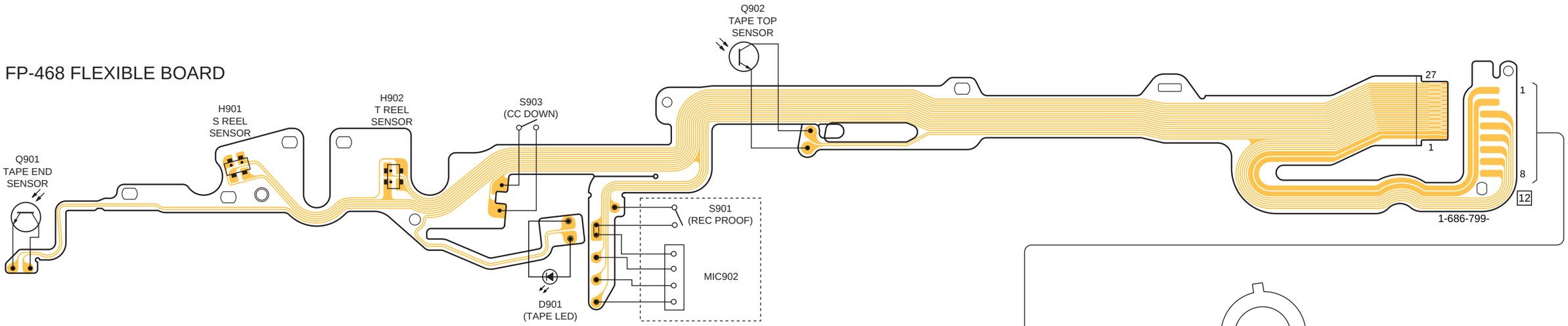
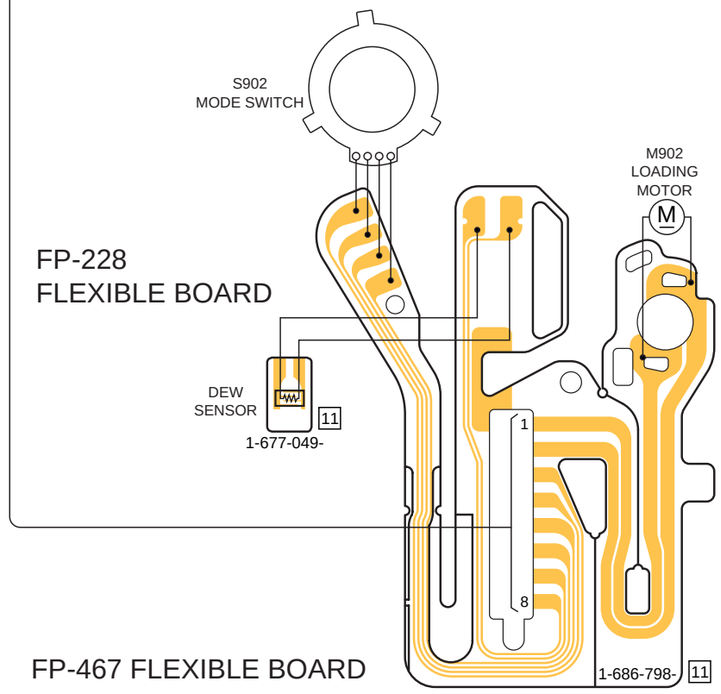
7. Printed Wiring Boards





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Revision History

Ver.	Date	History	Contents	S.M. Rev. issued
1.0	2003.01	Official Release	—	—